FEBRUARY, 1875.

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Respectfully, etc., P. B. WILSON, *Analytical and Consulting Chemist.*

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THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

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Farmers' Meetings, &c.

Farmers' Convention of Montgomery County, Maryland.

This meeting, held on the 14th ultimo at Sandy Springs, was largely attended and was interesting and animated throughout. The reputation for thrift and enterprise of the farmers of the immediate locality where the convention met is generally known to our Maryland readers, and for the benefit of others we will say that this portion of our State is naturally infertile, but by careful cultivation the soil has been so ameliorated as to produce crops which would do no discredit to sections far more favored by nature, and the Friends' Settlement is generally regarded as comprising some of the most successful and accomplished of the farmers of Maryland. Any account, therefore, of their methods, or the results they attain in husbandry, will be received, we think, with pleasure by the readers of the *American Farmer*.

The session was opened by some remarks from the President, Henry C. Hallowell, who dwelt with some emphasis upon the advantages to farmers as a class, of such meetings as these, and referred with gratification to every portion of the county being represented. The Secretary, Dr. Francis Thomas, then read the minutes of the last annual meeting, taking occasion to allude to the faithfulness of the report we made of its proceedings in the *American Farmer*. Reports from the clubs composing the convention were then read. Of these several will be found below, either in full or condensed.

After the reading of the reports, and before entering upon the discussion of the subjects selected for the consideration of the Convention, President Hallowell suggested that any one who had any experience to give in of general interest, or usefulness, would be heard by the meeting with pleasure, and by some leading questions he drew out some valuable facts, of which we give brief notes, merely stopping to say that this meeting, animated and interesting throughout, owed much of its success to the spirit and tact shown by President Hallowell, who happily succeeded in making all feel at ease, and, by well-directed questions, tell all they knew on the points at issue.

Care of Sheep.

The President said some persons held it was unprofitable or impracticable to keep the same flock of sheep long on one farm, in consequence of their becoming diseased, but that some of the best farmers are now arriving at a different conclusion.

Josiah Jones said he has the same flock that he got in 1840–45. They were originally Southdowns, but he has changed the rams, crossing with Cotswoldt, but has never bought any ewes, of which he has now 31. A number of Spring lambs sold a few weeks ago, weighed 120 lbs., and brought $8 each. About the only care he gives his sheep to keep them in health is to tar their noses, in Spring and in August, to protect them from the fly. In answer to a question, said he alters his ram lambs and cuts their tails off as soon as they are dropped. Puts the ram with the ewes about 1st November to have lambs come about 1st April. If he was going to sell his ram lambs very early would not alter them at all, but if kept on they should be.

George Brooke said his belief was that Merino sheep kept too long on one place grow too fat and die off.

Dairying—Harvester—Tiles.

It was stated that Mr. Schofield cleared last year from ten cows, $1,010. They are mostly Alderney grades. He feeds in winter all the hay they will eat, and 1½ gallons of mill feed, or 1 gallon corn meal.

Mr. Mantsell, being called upon for a report of the operation of the Marsh Harvester, said it cuts 4½ feet, costs $165, new; with his he cut one year 40 acres of level ground in three and a half days, and last year 22 acres in 22 hours, with two horses and driver, and two men to bind.

Arthur Stabler showed a specimen of drain-tile he is making, and Wm. Henry Farquhar said he has had tiles in use for fifteen years,

as efficient as ever, laid 2½ feet deep. He recommended very narrow ditches for tile, explaining the plan of laying them in England, where a double furrow is turned with the plow, and a man then throws out just as little earth as possible, the bottom of the ditch being little if any wider than the tile itself. There the round tile are mainly used, but without collars, or even rubbish over the joints, the dirt being thrown at once on the tiles.

Shall we apply Lime, and what kind?

This being the first question in the announced programme,

George Brooke said thirty years ago he was much in favor of the use of lime, and he had used on his farm 8,000 bushels, and has yet to see the first sign of any good effects.

Charles Stabler not only stirringly advocated the use of stone lime, but gave instances of the extremely good effects on grass lands of oyster-shell lime. Some which he applied on plowed ground, planted in corn and followed by wheat and grass, acted wonderfully well. He cannot afford to use stone, but hauls oyster shells, which he gets at a trifling cost, and burns them in ricks in the field where the lime is to be used.

Dr. Thomas said, in manuring a farm a little of a great number of things was wanted; and that the application of lime alone will not make a soil fertile, but that liming land first will prepare the soil for the development and utilization of other substances which may be incorporated with it afterwards.

Samuel Hopkins, of Howard Co., said lime *does* pay. His land at first was very poor, and to improve it he depended on lime, and it produces now double what it did when he began. All of his neighbors who twenty years ago left off the use of lime have gone back to it, their lands being poorer now than when they discontinued its systematic use.

Arthur Stabler, who is now farming the land of his father, the venerable Edward Stabler, [a name well known to the older readers of the *American Farmer*, for his recommendations of the use of lime,] said wherever the greater number of applications had been made, each dose being 50 bushels, the land was better in proportion. He tried himself six years ago, fifty bushels to the acre on a field of ten or eleven acres, and on the corn had applied from $25 to $30 in artificial manures. On the grass which followed in the rotation the advantage was perceptible where the lime had been given.

Edward P. Thomas said the value of lime was made apparent to him from the fact that every farm which had been regularly limed is better than those where none had been applied.

Wm. John Thomas said that with lime, as with artificial fertilizers, his doctrine and practice was, *the more the better*. He had put out on his farm ten thousand bushels, and wished it had been twenty thousand. His land was very poor when he began; the soil is light. (Our friend Thomas' modesty did not permit him to say what the land is now, but the fact was brought out as the general verdict of the meeting that his farm is now one of the most productive in the vicinity.—*Ed. A. F.*)

Philip Stabler, as pertinent to the subject, called attention to the cheapness of refuse anthracite coal for burning lime, costing in Baltimore only $1.50 a ton.

To What Extent is it Profitable to use Commercial Fertilizers?

President Hallowell hears sometimes of "sick" lands, their condition being popularly attributed to too little or too much artificial manure. What are the facts?

W. H. Farquhar referred to a gentleman present, whose land when he got it was the poorest in Montgomery, which meant in the world, and was now extremely productive, and hoped he would give his experience. Being thus called out, Josiah Jones told of his land, which when he began to farm it gave 30 bushels of wheat on 20 acres. On one field, of 20 acres, he put on his corn 10 bus. per acre of ground bones and 250 lbs. of Peruvian guano. He got from it 160 bushels corn. He then sowed it in oats, and got 400 bushels; then in wheat, and cut 20 bushels to the acre. This was in the days when oats were bringing 40 cts. a bushel; wheat $1; and corn, $2.50 a brl. The cost of his fertilizers was $18; and crops, at these prices, brought him $48 per acre. A second field of 20 acres, with the same dressing, brought him 228 brls. corn, 600 bushels oats, and 180 brls. corn; when, finding his fertilizers *did* pay, he suspended his keeping of accounts.

He believes in applying barn-yard manure and commercial fertilizers *together*. Has varied his applications of guano from 750 to 450 lbs., and down to 300, which latter was what he aimed to sow. He buys a variety of fertilizers and mixes all together, adding to all a little bone. Uses a Wagoner drill, and finds that, as irregularities sometimes occur, *where it runs out the fastest, it makes the best crops!*

Charles Abert on an old sedge field of three acres applied 300 lbs. to the acre of guano alone, and got 62 bushels of wheat. To a field of 13 acres, which then included these three, he gave 300 lbs. of a mixture of Lister's Bone and Peruvian guano drilled in, and got 19 bushels to the acre.

Mr. Beatty never used anything but a mixture of guano and bone, 200 lbs. former to 300 lbs. latter, and gives from 400 to 450 lbs. to the acre; finds where the most is put on he gets the heaviest crops.

George Stabler saw no difference between doses of 250 and 500 lbs., and believes it is no use on poor land to put heavy dressings.

E. P. Thomas gave as the decision of the Enterprise Club, that it is best to put on *all you can*.

Mr. Such uses bones and guano mixed, but *never* found a light dressing to pay as well as a heavy one.

Can we change our present Rotation of Crops to Advantage?

R. B. Farquhar read a carefully prepared paper, taking the view that we can. Finding that oats never pay, he plows sod land in the fall for corn; cuts off the corn and puts in wheat, timothy and clover; pastures one year, plows under and sows to wheat again; then sets in grass and allows it to remain three years. Fol-

lowing this plan, his corn land and sod land averaged 21 bushels wheat to the acre.

Does Pasturing Land after Harvest injure the Succeeding Crop?

As against the practice, the opinion of the revered Benjamin Hallowell was quoted,—this distinguished and now venerable man having for many years conducted a farm in the vicinity of Sandy Spring, on which he made many experiments in the practices of mixed husbandry, and which was improved by him from a condition of almost absolute sterility to raise large and remunerating crops. This enlightened scholar is indeed no more honored for his eminence in science and his devotion to philanthropic enterprises, than for his long-continued zeal in the improvement of the agriculture of our State.

Geo. Brooke says pasturing is a great improvement, otherwise the grass, by its luxuriance in good seasons, smothers itself.

Thos. J. Lea is a great believer in pasturing to make a good sod. Only wants the grass to make a good start and then pastures from October to June.

Messrs. Jones and Gilpin favored pasturing. The former practiced it at all times whenever his cattle would not mire themselves, and the latter had pastured very closely with sheep until the 10th of May, and then cut a better crop of hay than from any field he had.

Wm. Lea, jr., took the other view, and got one-third larger crops by not pasturing.

W. Talbott's experience was favorable to pasturing; he believes it compacted the land. Mr. Minister keeps stock off till late, then pastures light; it prevents injury by mice. F. Stabler pastures, but is very careful to keep stock off in wet weather. S. Hopkins objected to, and Dr. Lawrence favored pasturing.

On a Butter Dairy Farm what is the most Profitable Time for Cows to Calve?

Some difference of opinion was observed on this point, the practice with some being to have calves dropped in February, and to begin to make butter in March; whilst others preferred to have cows calve in August, make butter through the Winter and fatten the cows and sell them in June, when they will generally bring a good price,—the reverse being the case in the Fall and Winter.

Has Farming suffered more proportionately than other pursuits in the Business Depression of the past year?

There was no debate upon this question, it being decided to put it to a vote. This being done, the result was a unanimous No!

President Hallowell said this evening was at least an illustration that there was still a great deal of satisfaction and pleasure in country life, and the vote taken showed that farmers were not always disposed to look on the gloomy side of things. Mr. H. alluded to the Grange, glad to find that by the increase of the Patrons in that vicinity, instead of any diminution in the interest felt in these meetings it was rather enlarged. He then declared the convention adjourned until such day in January of 1876 as may be selected by the committee, a unanimous approval of the continuance of the meetings having been given.

Summary of Proceedings of "The Farmers' Club" for the year Commencing February 7th, 1874.

At the first meeting, it is recorded that all of the (16) members were present except two. With the view of showing what subjects of interest are noticed in the Winter, I quote the opening lines of the report:

"The lawn presented a beautiful aspect as we entered the front gate; a variety of evergreens interspersed with the majestic oaks, and half covered with the pure white snow, had quite a cheering effect this wintry afternoon, with 8 or 9 inches of snow on the ground; all except two of us here in sleighs. After a cordial reception by our host and his wife, she invited us into the family sitting-room, as being more comfortable than the less-used parlor, and we certainly found it very home-like, with flowers, books and papers, in sufficient variety to satisfy the tastes of a large family."

On going out, it was observed that the woodhouse and hennery appeared all right, the poultry adding to the compost pile, and all under cover. At the pig pen, it was objected that pigs only two and a half months old ought not to be required to grind their own corn. Forty head of sheep were well protected, but too much crowded to allow of the proper fulfilment of their maternal duties. The condition of some of the gates, and the garden fence, declared not in proper trim, but excused on the score that the season for repairs is approaching, but not passed yet. In answer to questions, it appeared the Club allowed from 8 to 10 cords of wood per year to tenant houses.

Those who have tried drilling oats, like the plan. Newspapers saturated with kerosene, are excellent for burning chimneys. Cattle cannot be bought in the Fall to be fed in Winter and sold *to profit* in the Spring.

At the next place visited, 3d mo. 15th.—Hotbeds were in a state of preparation for early plants. Cattle cannot be fattened on hay alone. Not profitable to raise pork at a less price than 8 cents. Would not breed from a 2-year old colt.

It was advised to make a pig-pen of part of a large garden where the quack-grass had possession. The wheat looked promising except where the fertilizer gave out, which put us in mind of old times *very much*. One member planted potatoes in March, six in April, two in May, and one in June. Five members sow plaster on clover. Most members have a poor opinion of flax as a crop. Most are in favor of a moderately deep planting of potatoes.

The wheat crop of '73, now reported from 13 members, averaged 512 bushels to each, and 20 bushels per acre. The wheat crop for '74 was between 17 and 20 bushels per acre. The corn averaged between 7 and 8 brls. per acre. Nine members reported 16,600 lbs. of pork, averaging 197 lbs. per hog.

5th mo. 2d, 1874.—It is noticed that the chicken-yard and pig-pen are all right; five neat pigs were in the pen; a large pile of hen-manure under cover, ready for use; also a lot of seasoned wood. Some farming implements were high and dry suspended from the joists of the same building, but the harrow and mower

were taking the rain, and sunshine too when they can get it; our host said, a neighbor had borrowed the harrow and dropped it there when he brought it home; it would have been neighborly to have put it where he got it.

Care required this year in selecting seed corn, as much of the corn is injured. Very little oats sowed by the club. To unchoke cattle, use oil or a whip handle.

Some rye sowed for the purpose of soiling found on measuring to be seven feet high; average weight of wool per sheep, 4 lbs. 10 of the members harrowed corn (that is, after it is above ground.)

7th mo. 4th.—At this place it was remarked that there were a number of hogs of various sizes in the pen, but it was evident either that there were too many pigs or too little corn, as the pigs did not quite come up to the standard laid down by Jesse Buell, 30 years ago, who said that the feed given to a pig was lost, unless the pig is larger to-day than yesterday; in other words, it is only the growth of the hog that makes it profitable.

The question how to destroy potato bugs, shows the first mention of that new pest in our records. Answer: Kill them by hand or Paris green; three had let them alone. The question of how late to work corn, led to considerable discussion about the propriety of late and deep working of corn, and ended where most discussions of the kind probably do, each retaining his own views. Apply clay to a horse's foot that is cut. The question, what mower and reaper is preferred? generally comes up once a year; but the perfect machine does not appear yet.

8th mo. 1st.—No ice seen in the ice-house; old peach trees loaded with fruit—none on the young orchard; a good sod on the field, lately mowed, showed (according to our host) that oyster-shell lime was doing good service; a large rick of wheat was admired for its symmetry, being the first our host's son had put up—was an extra good job; Colorado bug giving trouble, but being diligently destroyed; the disease of hollow-horn in cows, now doubted by some of our most knowing ones, and placed in the category of wolf's-teeth.

9th mo. 5th.—Met at the house of our Secretary—a new Secretary, pro tem., appointed to relieve our host from saying handsome things about himself, R. T. Bentley was appointed to say them for him—accordingly, we first take a look at the many beautiful flowers—then pass through what we thought was a very poor gate, until we saw one on the other side of the house, when we concluded this was a pretty fair gate, and would stand some time—if it did not fall down; on the side of the corn-field nearest the house, an acre had been appropriated to raise 20 barrels, but the dry season did not suit this arrangement! So we concluded our host would have the 20 barrels, but we must allow him two years to raise it on this acre; the garden luxuriant, and could be readily entered through the gate or broken pales; in the barn was everything a well-conditioned barn should have, and we could not see that the steps leading down below were any worse than they were last year; the hogs were very good—our host believes in keeping only a few, and making them happy and comfortable; the orchard had a heavy growth of grass, from the use of Lister's bone; a yoke of oxen was under perfect command of the driver, who makes them back any required distance without beating them over the face. Which makes the best blind ditch, stone or poles? Answer, poles.

A field that had received 6,400 lbs. of Bond's IXL at two dressings, and which yielded last year 42 bushels wheat per acre, shows a vigorous growth of clover, though a heavy crop of hay was harvested.

Questions—Would you sell wheat, hay or oats now? Answer—Most said hay or oats. What time do you breakfast? Answer—From 6 to 7½ o'clock. Is any one better off by farming this year? None would acknowledge they were.

11th mo. 7th.—We were at a stand to know whether we should sit on the porch or in the house. Average yield of potatoes this year 36 bushels per acre; extremes, 8 and 143 bushels.

12th mo. 5th.—Doubtful whether it pays to build a fine house and then partly hide it by a fence, even if it is fashionable in some cases to draw a curtain over our proceedings. In the barn-yard it was thought another cow might break her leg if allowed to step in and out of the log straw-pen, as we saw one do. The driving power of a thresher had been changed from belt to cog gearing with manifest advantage.

Montgomery County Farmers' Club.

SECRETARY'S SUMMARY.

In submitting a report from the "Montgomery County Farmers' Club," it is with pleasure that we can truthfully state that our organization is in a more prosperous condition than it was a year ago. This is not only evident from the fact of its being better attended, but by the increased amount of important questions produced. And as many of us are comparatively inexperienced farmers, the answers to these questions are often of practical advantage.

It is our custom to appoint in each meeting a member to furnish an essay for the next, on a subject referred by the president. This is not only improving to those who write, but has often furnished valuable information on such subjects as, What is known about the Colorado potato beetle? The proper method of applying commercial fertilizers? Is winter dairying profitable in this neighborhood? What kind of sheep are the best for us, and how should they be managed? Subjects that require time and thought to handle properly. Other equally interesting questions are constantly coming up, and we think profitably debated. As, Is deep or shallow plowing best for corn? On this question our Club is about equally divided. What is the proper method of cutting timber on land, when you wish the undergrowth to remain for wood? It was thought best to cut clean as you go. In answer to a question whether it pays to have blacksmithing done at home, one of our members who owns a small shop stated that with the aid of a hired smith he had saved about $3.00 in one day.

About the most profitable apple trees to plant we have decided are, the Baldwin, Smiths' Cider, Baltimore, White Spice, Wine Sap, Limbertwig, Cornell's Fancy and Northern Spy.

For the best varieties of peach trees we have had given, the Crawford's Early and Late, Smock, Morris' White, Orange, Stranger, Delaware White, Old Mixon, Royal George and Reeves' Late.

One of our members having informed the Club that there was a variety of locust trees in Loudon county, Va., that had afforded posts which lasted as long as two sets of chestnut rails, and as they were represented to be of a rapid growth, it was thought well to try the experiment of planting some in this neighborhood, and one of our members has some planted out. Another experiment, though not original with us, was to cover an acre of ground planted in potatoes, with straw. This was done on the farm of William Lea. The variety of potatoes was Peerless. They were planted early and not worked, nor bugged, and yielded 120 bushels to the acre.

The all-important question, does farming pay? was recently asked in our Club, and elicited considerable discussion; the general sentiment seemed to be that it could still be made to pay, but that the profits are much smaller than they have been, and we were recommended to bring our expenses down to correspond with the reduced prices of produce.

Report of Secretary of the Enterprise Club.

At the first meeting of the Enterprise Club, held in January, 1874, the great interest of its members in the cause of agriculture was evinced by the personal attendance of each member, and indeed throughout the year we have had nearly full meetings.

In the minutes of the meeting held at J. T. Moore's, the following remarks of the secretary appear:

Some of us were much pleased with the interest with which our host's little boys were attending to the stock, and we could but conclude that under such training they were likely to grow into energetic and successful farmers, pursuing their calling with an appreciation of, and love for, its ennobling influences. The Enterprise Club was among the first to take hold of the fast expiring County Agricultural Society and inspire it with a new and vigorous life. We have had also during the year a most excellent essay on the subject of agricultural fairs, showing how great good might be wrought by them. The writer thereof suggests, as the success of fairs depends mainly upon the art exhibited and the number of persons in attendance, that we should adopt an idea of our sister county of Frederick, which is, to admit each lady contributor free, as it is a well-known fact, that where one woman goes there one or more men are sure to follow.

Our club has a standing committee, whose duty it is to make investigations tending to the improvement of our farm stock. Under its influence we have already imported into our midst several thorough-bred animals of different species, with highly satisfactory results. Within the last year several thorough-bred Alderney heifers have been introduced, also quite a large number of Southdown sheep and Poland China pigs, besides a variety of the improved breeds of domestic fowls, all of which bid fair to be paying investments. As an evidence of the benefit of improved stock, one member reports having sold seventeen half-blood short-horn calves, at four weeks old averaging one hundred and sixty-three pounds, which was an average of forty-eight pounds more than those of another member who had common stock. I also heard, through the wife of a member who has heretofore had no faith in the Alderneys, that they did not color their butter this winter because they had an Alderney cow and it was yellow enough without.

I find by reference to the minutes that a majority of our members still cling to the heathenish idea of wintering stock in the field.

Most of our members are in favor of plowing sod land that is in good heart more than six inches deep.

Only six out of sixteen members keep sheep; the laws of Maryland being averse to sheep husbandry.

A new and powerful stump extractor has been used on several farms to the utter extermination of a great many large and aristocratic members of the stump family, thereby facilitating the cultivation of the soil.

The Colorado potato bug has made its appearance and consequent havoc in our midst.—Seventy-four beetles are reported as having been seen on one small potato stem. Paris green is used with success in destroying the grubs. The majority of our club will not plant so largely of potatoes the coming spring on account of these pests.

All who have tried Fultz wheat like it.

The Loudon plow (iron beam) is preferred to any other for sod.

Acreage of wheat seeded in 1874, 357 acres.

1,503 barrels corn raised by three members; average, 5¼ barrels to the acre.

2,215 bushels potatoes raised in 1874; average, 43 bushels to the acre, against over 100 bushels for some years back.

Having attended all the meetings of the club through the past year, except one, and having endeavored to reap whatever of the fruits of instruction our society bore, I have been strongly impressed with one incontrovertible truth, and that is, that there is no such thing as luck in farming; everything depends upon wisdom, energy, enterprise, economy, and good management, and to these qualities, in the name of the Enterprise Club, I commend all who would be successful in our calling.

Report of Committee on Expense and Feasibility of Establishing a Butter and Cheese Factory.

Judging from the views expressed by some farmers around here, it will be about 150 years before our community is ready for one of these factories. But it is always well to prepare in time for a new enterprise; it may not be amiss to report our investigations for the benefit of those who contemplate living that long.

The Old Dominion Cheese Factory of Loudon Co., Va., the nearest one to us, is capable of accommodating 500 cows, and cost about two thousand dollars. The first year or two it was fairly patronized, and the business was quite encouraging to the proprietors. After that some

farmers grew tired of delivering milk so far, and started a butter factory on a small scale.

Patrons of the butter factory who have tried both, pronounce butter-making most profitable. And at six cents a pound, the price for manufacturing and shipping, the maker would be well paid if he got enough to do; but he complains of great lack of Yankee enterprise among his neighbors, who still prefer the more laborious and less profitable system of grain farming to the confining drudgery, as they term it, of dairying.

X. A. Willard said while in this neighborhood, that a co-operative creamery would be likely to meet the wants of our people when they are prepared to enter into it. He said it would require a capital of about $3,000 to make complete accommodations for the milk of 400 cows, and that a competent man to start the business and instruct some of our own people could be had for $800 or $1,000 per annum.

In an establishment of this kind, the cream is taken off and converted into butter, while the skim milk is made into cheese.

As good butter always commands a good price in Washington markets, and as skim cheese is sold to a class of customers not over particular about the popularity of the brand, Mr. Willard thought such a factory would be most likely to succeed here.

The feasibility of co-operative dairies here is very doubtful at present. In New York and other States where they have been successfully established, great private enterprise in the way of dairying was usually a precursor to the factory system. It is true a few scattered farmers hereabouts keep a limited number of cows, and while most all declare butter more profitable than grain or hay, they still cling to the latter with a tenacity that I fear would be found disastrous to a factory.

Maryland State Agricultural Society.

At the January meeting, among other proceedings, Mr. Davis, the President, delivered an address relative to the progress made by the association during the past year. He said that the membership had increased over seventy-five per cent. the past year, and that the Society was not burdened with any debts; the money realized from the late show, the membership fees, and the State and city appropriations, enabled the treasurer to liquidate all outstanding debts, and leave a considerable amount of cash on hand. He also stated, that an arrangement had been made with the Maryland Jockey Club, by which the Society would be relieved of the expense, which he estimated at $1,000, of keeping in repair the grounds, buildings, &c., at Pimlico. After touching on the necessity of the Society for taking steps to increase the facilities for reaching Pimlico, the President referred to the importance of agriculture, and thought the labors of the agricultural classes were not properly appreciated by the city people.

On motion of C. Irving Ditty, a vote of thanks was extended to Mr. Davis, and it was resolved to publish his address in pamphlet form.

A letter was read from William M. Edelin, of Harford, requesting that the names of Messrs. William H. Waters, Fallston; William Haveland, Forrest Hill; Dallas Reese, Churchville, and C. C. Kinsey, of Pilesville, be added to a committtee appointed at the last meeting to increase the membership of the Society. Mr. Edelin also forwarded the names of several new members.

Mr. Richard T. Maynard suggested the advisability of erecting an amphitheatre at Pimlico, so that at the future exhibitions of the Society the stock could be displayed to better advantage. After some discussion a committee was appointed to consider the suggestion.

The committee appointed at the last monthly meeting to inquire into the most practicable way of increasing the facilities of reaching Pimlico reported progress, and was continued until next meeting.

The President called attention to the popularity and advantages of farmers' clubs, and referred to the great work done by them in New York and other Eastern States.

On motion of Mr. Ditty it was resolved to hold monthly discussions on topics of general interest at the rooms of the Association. The subject of dairy farming was selected for discussion at the February meeting, and Mr. Ditty was chosen to open the discussion.

The committees on "Membership" and also on "Sewerage," asked for further time to make reports.

On motion of Mr. Adolphus Cooke the following committee was appointed to select subjects for monthly discussion and name them in advance, so as to allow time for preparation: Adolphus Cooke, C. Irving Ditty, and J. G. Clark, constituted the committee. The subject selected for discussion at the March meeting is: "What is the best method of applying farm-yard manure?" Wm. Webster, of Baltimore county, was selected to open the question.

The Society then adjourned until the first Thursday in February.

Gunpowder Agricultural Club.

Messrs. Editors American Farmer:

The December meeting of the Gunpowder Agricultural Club was held at the residence of N. R. Miles. Edwin Scott, foreman. Among the guests present were Henry Carroll, jr., Dr. Waugh, R. B. Stewart, of Va., Jos. B. Ensor.

The "Complete Washer," patented by Adams, was exhibited and operated. A degree of excellence bordering on perfection is claimed for this machine. It is simplicity itself, performing its wonders by means of three medium-sized wooden rollers. The agent promises to keep it in repair free of cost for five years. Price, $6. It washed before our eyes articles embracing various grades of texture, ranging from a dollar note to a coarse carpet. It was confided with its merits and demerits, if any, to the critical judgment of the Machinery Committee, from whom a report may be expected. The Prize Corn Acre Committee, through their chairman, S. M. Price, reported that Edwin Scott had raised on one acre 22 bar-

rels, 9 3-5th bushels, (ears); Jos. Bosley—21 barrels, 5 bushels; T. T. Gorsuch—16 barrels, 9 1-10 bushels; I. M. Price—at the rate of 16 barrels, 4 b ishels.

Edwin Scott had taken a meadow sod of six years standing. It had a moderate covering of long barn-yard manure on the sod before ploughing. Was ploughed on 19th May six to eight inches deep, and thoroughly prepared. Corn was planted May 23d. About one-fourth of the acre was run off in double rows a foot apart, with five feet interval between each set of double rows. Hills were eighteeen inches apart; he was particular not to get them opposite in the double rows. Balance of the lot was planted in step corn, with an interval of three feet nine inches in the rows, and twelve inches in the hills. Whitelock's Vegetator was used in the hills at the rate of 150 pounds to the acre. Salt was dropped on the hills in two rows, and two rows left without either salt or "Vegetator." No difference in yield was perceptible at gathering time. A portion of the acre was very much affected by the drought, owing to limestone near the surface. Last working was with furrow plow, throwing the furrow to the row and then hoeing.

T. T. Gorsuch had taken his test acre of '73. It was ploughed in the fall, with the intention of seeding to oats. In the spring it was treated to 12 cords yard scrapings and 600 pounds superphosphate (domestic.) Planted June 2d; rows two feet by three feet ten inches. June 8th.—Nearly every hill was up, and looked thriving. Was worked five times; last time, July 17th. After third working, two bushels plaster were sown broadcast. The corn grew finely, and suffered little from the long-continued drought till it tasseled and silked, though there had been but two light showers of rain from the time of planting until then. After that it suffered seriously.

The remaining competitors had failed to furnish written reports. No premium was awarded, as the prescribed limit of twenty-five barrels had not been reached or exceeded.

Club discussed the subject of "how to economize to best advantage in cost of fencing."

With one exception it was agreed that fencing entails a heavy tax on farmers. According to an extract read, it costs in the United States "more than the houses, cities included—more than the ships, boats, and vessels of every description that float the ocean, lakes and rivers—more than the manufactories of every kind with their machinery—more than any one class of property, aside from real estate, excepting it may be the railroads of the country." All admitted that a first step toward relief is the display of the necessary "nerve" to put into execution the existing laws against vagrant stock. The statement was made that the enlightened people of the Sandy Spring community, (Montgomery co.,) had long since worked in each other's support to abate this nuisance. They relied wholly on the provisions of the common law, and found them ample. This action had accomplished for them the desired result of reducing materially the cost of fencing. Persons present had seen in the section in question gates left open with impunity, and unfenced grain fields along the public roads as free from injury.

Soiling and herding were both suggested as remedies, but the current of opinion went against them as worse than the disease. Most members thought economy could be secured in inside fences by dispensing with hogs, or by keeping them in the pen, though it was asserted that less than five rails permitted grazing stock to reach through and destroy more than two rails would cost. Hedges were suggested, but the only member who has been planting them claimed no special advantage for them. The single member who did not regard the cost of fencing as oppressive, stated that 1,000 rails yearly, at $90 delivered, kept his fences in satisfactory order, (size of farm, 300 acres.) He considered the tax a kindred one with the repair and renewal of farming implements, supplying the loss and wear of motive power, etc.

Balto. Co., Jan. 10th, 1875. T. G.

Woodlawn Agricultural Society of Fairfax County, Va.

Messrs. Editors American Farmer:

The regular monthly meeting was held at the house of R. F. Roberts, January 16th. The President, C. Gillingham, and the average number, 25 members, with their wives, were present.

The President read selected extracts from the Agricultural Report of 1872, on the subject of "A Hundred Years' Progress," by Charles L. Flint. The facts in these reminiscences of the struggles of the early agriculturists of the country with rude implements, and the first importation of cattle—dating back more than 200 years—are exceedingly interesting. This paper will be followed by others, giving a condensed statement of the latest statistics of the agricultural products of the country.

A conversation was held on the proper care and attention necessary in the management of milch cows. Samuel Pulman, a well-known dairyman, gave some valuable directions to pursue in cases where cows were in difficult labor; also remedies to be given when they were affected with the milk fever, recommending large doses of epsom salts to be given in such cases. He had saved some cows with this remedy after they were prostrated—unable to get up.

An article was read from the *Country Gentleman* on the progress made in farming, in which was recommended the practice of applying all manures to the surface of the land as fast as made. This was endorsed by most of those present, with the additional recommendation to make as fast as possible, from every available source.

In discussing the progress made in farming, one member stated that 17 years ago, when he moved on to his farm, he could keep but six head of cattle; now he had 150 head of different kinds of stock, and would have a surplus of fodder.

E. E. Mason made a statement of the result of his butter dairying the past year. Owing to the long-continued drought, reaching all through the Fall, his cows had not been as profitable as the year previous. At the end of the year 1874 each cow showed a profit of $43.50. The year previous the profit from each cow was $55. No

account was taken of the manure made, or of the pork raised. The average price of butter sold in the Alexandria market was 43 cents per pound.

After supper, Dr. Howland (one of our members) gave some very interesting illustrations in chemistry and electricity,—explaining the mode and principle of preserving fruits, vegetables, and meats. Showing also the cause of the explosion of kerosene oil lamps, which he stated caused more deaths than all the railroad accidents in the country. He urged the importance of each farmer or neighborhood providing themselves with a perfectly safe oil, which could be bought for 16 cents per gallon by the barrel at the refinery—the same that retails for 40 or 50 cents per gallon,—such as Pratt's Astral Oil.

The Dr. also showed us a half-gallon iron casket, in which was condensed by immense pressure 100 gallons of nitrous oxide gas, a small portion of which he administered to several persons present.

A vote of thanks was given the Dr. for his entertaining and instructing illustrations and facts. After making arrangements for the next meeting, which is held on the Saturday preceding each full moon, the club adjourned.

N. W. PIERSON, *Secretary.*

Meeting of the State Grange of Virginia.

The State Grange met in Richmond on the 14th ulto. About three hundred delegates were present, including many representative men of Virginia. The reports of the officers show an increase of over twelve thousand in membership during the past year. There are over four hundred and fifty granges in the State. The officers elected to-day are as follows: Master, Col. J. W. White, of Charlotte; Overseer, Thomas W. Tredway, Prince Edward; Lecturer, J. W. Morton, Charlotte; Steward, General William McComb, Louisa; Assistant Steward, J. B. Dunn, Washington; Chaplain, Rev. Dr. John C. Blackwell, Buckingham; Treasurer, W. B. Westbrook, Petersburg; Secretary, M. W. Hazlewood, Henrico; Gatekeeper, M. B. Hancock, Charlotte.

Among other business transacted, it was recommended that in buying and selling, all local granges should combine and act together respectively, and through the local agencies established by the executive committee as far as practicable. Also that farmers' exchanges be established in Richmond, and such other points as may be deemed advisable. A resolution was adopted looking to the establishing of a central bank in Richmond. A committee was appointed to urge the passage of the immigrant bill pending before the Virginia Legislature.

Maryland County Societies, &c.

The Carroll County Agricultural Society has elected the following officers for the ensuing year:—Granville S. Haines, president; Joseph Schaeffer, vice-president; Charles V. Wantz, secretary; Richard Manning, treasurer; Henry E. Morelock, Thos. F. Shepherd, Samuel Roop, David Fouble, and Francis H. Orendorff, directors.

The Talbot County Agricultural Society has been incorporated, with Joseph B. Seth, president; Col. Edward Lloyd, Col. Wm. R. Hughlett, George R. Goldsborough, Charles M. Jump, F. H. Johnson, T. N. Chance, John K. Caulk, L. H. Delahay, Alexander Bowdle, and Dr. W. Caulk, directors; L. H. Delahay, secretary and treasurer. They will commence improving a fair ground early in February, probably selecting a site near Hambleton.

The Kent County Agricultural Society has elected the following officers for the ensuing term:—W. W. Stephens, president; Thomas C. Parsons, vice-president; W. C. Stevens, secretary; J. W. Corey, corresponding secretary; Wm. H. Stewart, treasurer; J. P. Nicholson, librarian; Dr. Samuel Beck, S. Vannort, and T. H. Stevens, executive committee.

The Potomac Fruit-Growers' Association has elected the following officers during the ensuing year: President, C. Gillingham; first Vice-President, Wm. H. Chase; second Vice-President, Z. M. P. King; Secretary, Dr. J. E. Snodgrass; Treasurer, N. W. Pierson; Executive Committee, Edward Daniels, Robert T. Roberts, Major John H. King, E. P. Howland and P. H. Folsom.

Wheatland Grange, No. 64, of Baltimore co., Md., has elected Vachal Baseman, master; Jno. S. Miller, lecturer; Dr. H. W. Hebb, secretary.

Spaniard's Neck Grange, No. 67, of Queen Anne's co., Md., has elected W. T. P. Turpin, master; Edw. B. Emory, secretary.

Forest River Grange, West River, Md., has elected H. M. Murray, master; Joseph R. Owens, secretary; Mrs. E. E. King, pomona; Mrs. Benjamin King, pomona; Miss Mary Welch, flora; Mrs. Samuel Brooke, stewardess.

Maryland Milk Producers' Convention.

The adjourned meeting of this body was held on the 12th ultimo. J. H. Herbert, of Howard co., was elected permanent president; Jas. Norris, of Harford co., vice-president; and A. C. Huet, of Howard, secretary.

Jas. Norris offered a preamble declaring the object sought was the mutual benefit of consumer and producer; inviting the co-operation of the consumers of Baltimore to assist in having only pure milk brought to market, and to aid the producers and dealers in the establishment of an honest trade; also the following:

"*Resolved*, That we (producers and dealers) will use all honorable means in our power to procure the passage of a law making it a penal or criminal offence (or both if necessary) for any person to offer for sale an article called milk which has been adulterated or manufactured by any chemical process containing ingredients unwholesome or deleterious as an article of food, or the production of unhealthy cattle; said law also to provide for the creation or appointment of a competent and practical chemist as milk inspector for the city of Baltimore."

Mr. Herbert offered a preamble and resolution declaring that a common interest in the milk trade of Baltimore required State or municipal action; that inspection and classification of qualities, in the same way that fixes standards, graduates and determines values in other commodities of trade, apply with equal force to the products of the dairy; that the absence of any standard or measure of value placed good and pure milk on a par with bad; that the honest

dealer or producer was practically driven out by the competition of those less scrupulous, and authorizing a committee to wait on the mayor and city council, furnished with a copy of these proceedings, and asking such action as may be necessary within municipal authority.

The papers offered as a sense of the convention by Messrs. Norris and Herbert were adopted, and the gentlemen named appointed on the committee to wait on the mayor and city council.

Agricultural Calendar.

Work for the Month—February.

Although it often happens that "as the days lengthen the cold strengthens," yet the lengthening of the days reminds the farmer of the approach of his season of active labor, and it is important that now whatsoever his hand finds to do shall be forthwith dispatched, in order to leave him free to undertake other duties which will soon be pressing upon him.

Manures and Composts.—The gathering together of materials for making manure is a work which ought not to be neglected when opportunities offer at any season. If we dwell frequently and earnestly on this subject, it is because its importance justifies the prominence and emphasis with which we treat it; and, as for the season now at hand, supplies must soon be gotten ready, our suggestions will not at least be untimely. The collection, manipulation by turning over and commingling with richer material, of all refuse organic substances; the preservation from leaching by rainfalls of the most valuable ingredients of the manure pile and compost heap; the occasional dusting over the fermenting piles of plaster to absorb or fix the valuable but evanescent ammonia constantly escaping;—these things can be done at all times. Compact your manure; do not permit it to lie over the whole yard. If impracticable to keep it under cover, which it would pay you to make some provision for doing, at least do not let a stream of water run through it. Dig out a hollow where the liquids will run to the centre, and see that all the urine from the animals *does* run there, and not to waste.

Nothing of organic origin, whether animal or vegetable, should be allowed to decay on the farm anywhere save in the compost heap. Leaves, sods, trimmings of the garden walks, rubbish from the fence corners, road scrapings, bones, spent ashes, pine shatters, slops from the house, dead animals, all may be added, with profit, to the heap. If the bulk of these extraneous substances is supposed to be worthless on account of their largely consisting of vegetable fibre, that carbon abundant always in the air, a great mistake is committed. Its addition to the soil enlarges its proportion of humus, and, it may be, adds directly to the plant food present.

Of course, as the basis of all compost heaps, that which gives the activity to the whole, good strong stable manure, must be present. The fermentation which begins in it spreads to and includes everything else which is added. Hence will be seen the necessity for as thoroughly as possible incorporating the various substances intimately together. As a necessary condition to the putrefaction of the heap, moisture must be present, but it must not be too abundant. Water not only aids in the decomposition of the crude matters, but, by dissolving some of the products of their changing shapes, it keeps them from volatilizing. This is especially true of carbonate of ammonia, which is abundantly formed in decaying manure heaps. Both this substance and free ammonia are very liable to escape into the air unless some pains is taken to fix the volatile element. This is the office of the plaster or sulphate of lime, which, added to the heap, results in a double decomposition, leaving carbonate of lime and sulphate of ammonia, the latter salt not possessing the volatile nature of the carbonate. Diluted sulphuric acid added to the pile effects the same purpose, probably more speedily and more effectively, but the agent is one dangerous to handle.

We might summarize the proper treatment of manure piles and compost heaps, or both combined together, as follows: Do not allow them to become water-soaked, but see that moisture enough is present to facilitate fermentation and prevent fire-fanging or burning; occasionally mix the whole mass together as far as may be practicable, putting the straw and other carbonaceous matters into as close contact as possible with the fresh dung, and alternately; from time to time, sprinkle plaster over the whole heap; and, as not less important than any of the above, see that all organic substances on or about the farm, around the out-houses, from the dwelling, are added to and thoroughly incorporated with the heap.

Sowing Clover Seed.—The plan of sowing clover seed on the snow, when there is any on the grain fields this month, is one which has many advantages. The seeds can be distributed very regularly, and the snow in melting carries them down into the crevices of the soil, where they are ready to germinate. If not so sown, it is preferable to wait until the frost is out of the ground and lightly harrow them in, and roll. On most soils a bushel of seed is sufficient to sow five acres. In the South, fall sowing is believed to be preferable. A good article from a practical hand was given in last month's *Farmer* on getting a set of clover, which it will be worth while to again refer to. The value of clover as a forage plant and as a fertilizer begins to be more and more appreciated, and enterprising farmers all through the South, in sections where it was formerly supposed it would not flourish, are giving practical demonstrations to the contrary.

Lucerne.—This can be sown in the same way as clover, though we believe that here sowing in August, and further South in September, would be found more advantageous. It is useless to sow this on poor ground, or on land that is full of weeds. It stands drought well, but it does only its best in seasonable years. To escape weeds it is best probably to sow in drills, so that it can be cultivated, but if proper pains are taken it may be sown broadcast and do well.

On ground which has been cleanly cultivated in corn, sow lucerne with about half the quantity of oats generally sown, and cut the oats for feed when coming into head. In this way the lucerne will have protection until it is able to take care of itself, and the weeds will be avoided or crowded out. Sown in drills, 10 to 12 pounds of seed are required for an acre; sown broadcast, 15 to 20. Not only should the land be rich, but a top-dressing should be applied after each cutting. If liquid manure can be given, it will be the best application possible.

Pastures.—When the ground does not poach when a team goes on it, as often is the case for a day or so at this time of the year, it affords a good opportunity for applying to grass lands a renovating mixture of say 100 lbs. fine bone-dust, 4 or 5 bushels of ashes, 1 of plaster and one of salt to the acre. When practicable it will be well to harrow the ground first, then sow this mixture and roll. Clover seed may be sown, if desired, when the ground is harrowed.

Sowing Oats.—It is not too early to begin to think about and prepare for this crop, which is generally regarded as rather an unprofitable one, probably from the fact that an insufficient amount of care is given it. It is a crop which will not grow on poor land without considerable fertilizing material is added.—Meagre supplies of manure and hasty preparation of the ground is the key to the production of the poor crops so often gathered.

The late Robert Sinclair, Jr., of this city, a very close observer, was a great advocate of sowing oats in February upon the snow, as practiced in sowing clover seed. His plan was to sow on land plowed the previous Fall, and, after the plants had grown sufficiently, to harrow the land and roll. The uniform result, he claimed, was heavier crops, both in grain and straw, and much earlier maturity than from seed sown in April, on similar ground no better prepared.

It is prudent to make frequent changes of seed with this crop, as it rapidly deteriorates. Twenty two-horse cart loads of manure, or well rotted compost; 300 pounds of good super-phosphate, or 400 pounds of bone-dust, with say 10 bushels of ashes and one of salt, ought on most soils to produce a crop which would prove remunerative.

Tobacco.—No chance should be missed to make ready the ground for beds. Brush may be gotten together and the ground made ready for burning, in order that as soon as sufficiently dry the seed may be sown. As a rule the earlier plants are, the better, and there is an opportunity then also of repairing any losses which may be incurred.

Live Stock.—All that we said last month, concerning the needful attention due all kinds, applies with equal force now. Try to give milch cows some succulent food occasionally, and regularly a little bran or middlings. Provide shelters for cows and heifers in calf, and brood mares. Keep your hog pens supplied with ashes, rotten wood, &c., and provide free supplies of pure water. Roots now are especially valuable for sheep. Ewes about, or after, yeaning, are particularly benefited, so are fattening sheep, by their use. Do not let early lambs suffer any set backs. Give the ewes dry and warm quarters. Poultry need mixed food. Scraps from the house, sour milk, bran, are all good. Provide gravel and lime for them. Do not omit to salt all live stock. It is preferable to put salt where all kinds can get it as desired.

Implements, Machinery, &c.—Have these overhauled now and repairs made, if needed, before they are wanted for use.

Orchards.—If you intend to plant one in Spring, you may be able to forward the work by doing some of it now. You may have a chance to plow the ground. If you have not your trees on hand, do not delay to make out your list and send it to a reliable nurseryman. Take no risk on your trees. Buy from parties of known character. It is not wise to deal with itinerant tree-peddlers, and in selecting kinds it is wise to consult the experience of those of your neighbors whose fruit does well.

Farmers' Clubs.—Encourage these. Do not grow lukewarm as their novelty wears off. If you do not belong to one, join one. If there is none in your vicinity, go to work to raise one. Call on a few of your live farmers to join you; discuss it, put your plans into operation, and go ahead.

Foreign Correspondence.

On the Destruction of American Woods and Forests.

Messrs. Editors American Farmer:

Allow me to confer with you about a theme not at all new, but so important that it cannot too often be recalled to the attention of farmers and landholders; that is, spare your forests, save every tree on your premises, especially on land not fit for agriculture. When I consider in what a short time your splendid forests are destroyed; when I know there is no government to save or replant your woods for a future generation, this matter is one of no ordinary character. With us, the states possess large forests all over the country, managed by the government, so that our future generations, just as we, will have their necessary supply of timber forever. The preservation and management of forests is indeed one of the wisest and most advantageous institutions of our monarchial governments. When I think what consequences the destruction of woods had in the Orient and in some states of Europe, I fear for America. I fear it must go to ruin as fast as its woods are destroyed. I do not intend to mention the direct utility of wood for mankind, nor will I remind you that after a short time timber and fuel will have exorbitant prices. I only will mention that forests are the regulators of the climate. Exact and repeated investigations have settled the question, that in a country where the woods are destroyed the climate changes to worse. The air loses its moisture, the springs dry up, the country becomes a barren desert, even where the soil contains the richest ingredients.

Mesopotamia, once the most fertile spot of the world, as well as Persia and Egypt, lost with

their fine woods, their blissful springs and waters, and are at present deserts; the summers are so hot and dry that even on the boundaries of rivers the land is burnt like ashes. These countries need nothing but more rain and moisture to bring thirty and forty-fold fruit. What is gone with venerable Greece since her rocks and hills are bare? She has lost with her sacred forests her charming historical wells and brooks, her rich meadows and pastures, her golden fields. On the other side, it is not the soil nor the heat alone in South America that produces so gigantic a vegetation. It is a warm moist atmosphere. Clear the woods, and vegetation will cease to thrive so luxuriously. Great natural philosophers and travelers,—Alexander von Humboldt and Boussingalt,—have stated long ago that in some parts of South America lakes and creeks disappeared after the destruction of forests, and reappeared as soon as the neighboring country was covered by forests again. In our temperate climate the devastation of forests will not so strikingly diminish the quantity of water, but the rain comes irregularly for many months, the sky is blue, the clouds formed over-night in the morning dissolve again, without spending their sources of blessing on the thirsting fields just when the vegetation wants a refreshing rain; and at other times falls immoderately. Since the mountains of southern France (the territory of the Rhone river,) and in the southern part of Switzerland are bare of all woods, the grass of the valley does not grow so luxuriously any more as formerly, and vegetation appears starving; but when the rainy season begins, the water runs in large streams without interruption down into the valley, destroys whole villages, endangers men and animals, tears hills and rocks and covers the best arable land with stones and rubble. Mountains well covered with trees keep the moisture of the atmosphere within, so that the air never becomes so dry as on land all bare; and when rain falls it does not rush down hill with vehemence as from a roof, but one part of the water will be caught by the top of the trees and evaporate slowly; another part will, hindered by roots, moss and leaves, go slowly down hill or trickle into the ground, to saturate the ground and cause the formation of springs. The governments of both countries do their best to set these mountains with wood again, but the damage is sooner done than repaired.

In a plain country also, the forests are the regulators of the atmospheric moisture. It is a natural law that warm air is able to hold a larger quantity of moisture than cold a r. As soon as warm moist air gets cooled off, the cool air cannot retain all the moisture and the same falls down as rain. Now forests have in summer always a lower temperature than open fields; consequently as soon as a moist atmosphere or clouds coming into the vicinity of or above forests, the air gets cooled off, and the surplus moisture falls down as rain. On an open sandy spot, made hot by the sunbeams, clouds never will overflow. Another advantage of forests is, they interrupt wind and storms, not only to break their force, but to prevent a dry wind carrying off a moist stratum of air, or that the wind carries off too quickly that moisture gained by rain showers. Not only large forests but small pieces of woods, even a single plantation of trees, augment and preserve the moisture of the atmosphere. It has often happened that when a small piece of wood was cut, the neighboring spring dried up. How needful a more moist atmosphere is for the United States, every farmer in America is, I suppose, aware.

Not those heavy rains are wanted that fall sometimes when the wheat harvest begins, but gentle, soft rain showers and a vaporous air are wanted in spring and at the beginning of summer, just when vegetation makes her best start. It is observed that the rain-fall in the United States is almost the same as in Europe; still the air is a great deal dryer. To a man that has lived in both hemispheres it is strange to see how fast in America all wet objects dry up. Washings dry fast even in the strongest winter; bread gets dry and hard in a day or two, when in Europe it is fresh and soft for eight days; new buildings when finished are at once inhabited without any disadvantage, but in Europe they are damp so long that the health of the inhabitants as well as the buildings themselves receive a hurt, when they are inhabited shortly after their finishing. Buildings treated in that way, not dried up thoroughly, are afflicted with fungus destroying the timber and boards within; likewise all kinds of vegetables, fruit, meats, keep in America far better a long while; in Europe all soon mould. No doubt the atmosphere of the most part of Europe is more moist than that of the United States, and on that account more favorable to vegetation. The more forests are destroyed, the drier will become the climate of the States, and the best kinds of soil will not be able to produce a full rich harvest. I f ar when the woods are all shaved off, a great tract of the United States will meet the fate of the Orient, once so rich and flourishing. And is it not to be expected that the winters will still become colder when the cold winds blow from the Arctic pole down south without being interrupted by forests, and will not the summers become more dry and hot when all the forests are cut away?

Another advantage derived from woods is, they are a shelter for the birds. Where will your insect-devouring birds find a home, where shall they find a place to hatch their eggs, when the woods disappear? There is already damage enough done by insects, more than in any part of Europe. Therefore, farmers and landholders, don't waste your forests; spare them for yourselves, for the whole community, and for your descendants; save them and yourself a lasting supply for timber and fuel. Whatever you hew down for use, sow and replant again, especially on land not particularly fit for agricultural purposes.

E. WENIG.

Neudorf bei Schonlanke, Prussia, Dec. 18, 1874.

Our French Letter.

To the Editors of the American Farmer:

The principle of a rotation of crops is not questioned, but French agriculturists demand if uniformity in applying the details of the system be sound. Is it possible, for example, to farm profitably and in reference to fertility of soil, by excluding grain crops from a rotation? M. Moreuil allows his results to say yes; his

culture of a farm of sixty acres comprises 15 acres in natural meadow, and the remaining 45 are divided into moieties, of which one-half is under lucerne, and the other, green maize and cabbage; the two latter succeeding the lucerne every sixth year. The maize receives 25 tons of farm-yard manure per acre, and yields 40 tons of green fodder, the greater part of which is preserved in trenches as fermented food. The base of this system of cropping is the production of forage plants, the maintenance of the largest number of cattle, and the smallest expenditure of labor; and the pivot of the plan is, the preservation of the green food for winter use, a plan that M. Moreuil was the first to adopt in France. He does not advocate variety in his crops, but prefers concentrating productive forces on a few plants, well selected, and adapted to his soil and climate. It is not only division of work, but division of production. The fattening of stock he considers pays best at present, and should the tide in this respect turn, his land is admirably prepared either for cereals or industrial plants. M. Moreuil goes as far as to advocate, that by abundant yields of green maize the old plan of rotating crops becomes unnecessary. For the bedding of his stock, he reaps the coarse grass, &c., of a neighboring forest, an advantage not at every person's door.

Fattening Cattle.

The economical feeding of cattle continues to be the order of the day. M. Niviere has obtained surprising results by the use of chopped hay and straw, moistened with cold water, in which was a little powdered oil cake, and allowing the mass to ferment for two days, well compressed in a reservoir. Increasing the nutritiveness of this food, by a little hay and oil cake, the cattle produced about one pound of meat per day, and the same quantity of subsistence sufficed to support oxen working ten hours daily. M. Niviere attaches not a little importance to the production of manure; each of his 160 head of cattle has a stall two feet below the level of the floor, impervious, and horizontal; the litter consists of chopped straw, in lengths of two inches, with layers of coal ashes and gypsum; not the slightest offensive smell is to be detected, and every three weeks the stalls are cleaned, and the manure carted directly to the field; nothing is lost; the cattle are dry, warm and healthy. The cut and fermented straw, as described, form the remunerative basis of M. Niviere's system of fatting.

Preserving Green Crops.

The preservation of forage plants in a green state, by allowing them to ferment in air-tight trenches, is making rapid strides in France. Maize is the favorite plant cultivated for this purpose, and where the climate is not too dry, and the soil well manured, it succeeds admirably. Evidence after evidence is adduced of the revolution maize thus grown and preserved is making in agriculture. The ordinary size trench 24 feet long on the surface, and 21 in the bottom; the width at the top 9 feet, and 6 at the bottom, the depth being uniformly 6 feet. The sloping nature of the trench enables the maize, or other fodder, to pack better; the height of the mass above the soil should never exceed the depth of the pit, and two feet of earth is sufficient covering, taking care that this roofing retains its rounded shape to throw off the rain. Air of course must be excluded as well as water. It is an open and perhaps optional question, whether the maize should be left to wither two days in the sward before being packed; or if it ought to be chopped, or mixed with cut straw, chaff, &c. M. Crevat has constructed pits in brick work and coated with cement, to preserve thus green food, and finds his cattle to eat about 45 lbs. of the fermented mass daily, that which had been conserved eighteen months with the same appetite as that which had been preserved for only eighteen weeks. When freshly packed, a cubic yard of the mass weighs 8 cwt., and when duly fermented, one ton.

Artificial Manures—Dissolving Phosphates.

There can be no question that despite the facilities for gratuitously analyzing manures, and the rigors of the law, adulteration of manures never was so general. Farmers have only themselves to blame if they be deceived; forewarned, they ought to be forearmed. Nor should they at the same time omit to make certain before complaining, that they have made no mistake as to the suitability of a commercial manure for their soil. The salts of potash, for example, rank as important fertilizers, but fail in producing their effects owing to not being judiciously employed. They succeed only where the soil is poor in potash, and ought never to be applied at a rate higher than 2 cwts. per acre, and beets, potatoes, clover, flax, hops and spurry, are most ameliorated by potash salts, as well as old arable soils; they are farther especially adapted to moist pasture lands or boggy ground. Liebeg in 1840 stated, that a phosphate would become more valuable, if it were previously treated with sulphuric acid. It is only since 1860 that the use of soluble phosphates has become general, whether of mineral or of bone origin. The value of the manure is estimated by the per centage of phosphoric acid it contains. The sulphuric acid renders the phosphate soluble in cold water, and though after a time it becomes insoluble in the soil, it ever remains in a state of minute division and thus suited for the plant. The less the phosphate to be operated upon contains of such impurities as iron, chalk and alumina, the better. In France, the animal black of the sugar refineries furnish the phosphate to be treated: 100 parts of the black to 69 of acid. It is generally prepared by the farmers themselves, in a dry brick shallow trough, the mixture well stirred with wooden sticks, and, when dried, sifted; a mixing machine is better, taking care that a good current of air carries off the noxious fumes generated. One can never prepare the compost so well or so cheaply, as it can be purchased at a respectable factory.

Care of Horses.

Horses are very fond of a little nitre in their drinks, and in the northern districts of France, where nitrate of soda is so largely employed as a manure, the stable men often wash the sacks containing this salt in the drinking troughs for the horses; many of the latter have experienced violent colics in consequence, and several animals have succumbed. The water in which the sacks are washed should be thrown on the manure heap.

To avoid the ugly marks of broken knees, it is recommended that when the horse falls the wound should be washed, by throwing a bucket of water upon it, and never irritating it by any friction; dry the wound then with a very soft cloth, and place over it a layer of dry cotton, a finger length in thickness, covering with a band of *flannel*, and the latter with the usual leather knee-cap, not too tightly strapped. Let the horse repose for three or four days, and without touching the bandage; at the expiration of this period, take off the bandage very delicately and without touching the crust on the sore, and walk the horse a little, but very slowly; then replace the bandage as before. In thirteen days the crust will fall, the wound will not only have a new skin, but will be recovered with hair, and no change of color will be preceptible.

Substitutes for Butter.

Milk contains on an average about 3 per cent. of butter. Chevruel has demonstrated, that fatty matters are composed of several particular substances, but mixed among themselves in different proportions. If olive oil be congealed at a low temperature, pressed between sheets of paper, a solid substance called "Margarine," because it has the aspect of a pearl, *margarita*, is obtained; the other substance is called "oleine," and is liquid, from *oleum*, oil. Beef and mutton suet in addition, contain a third substance designated "stearine," being the Greek word for tallow, and which is employed in the manufacture of candles. M. Mege experimented on the feeding of cows, and found that the fat of the animal contributed to form the butter in its milk. He takes then the fat of cattle the day they are killed, rends it by teethed cylinders, melts it in boilers, and, when purified, the mass is pressed between rollers, yielding nearly equal weights of stearine and "margarine." The latter resembles butter in every respect but in taste; looks well to the eye, and keeps longer without becoming rancid. It is this last property which leads to its use in the Navy. However, it will never prove a serious competitor with butter, but will in cookery hold a rank between butter and bladdered lard. Suet sticks to the gums when eaten, owing to the presence of stearine; having none of the latter, margarine melts in the mouth like butter. As beet-root brandy is largely used to adulterate cognac, and chicory coffee, so margarine is extensively mixed with Bretagne butter, or when dissolved in water, and colored with milk, sells largely in Paris, as milk fresh from the cow.

Destroying Weeds in Walks, &c.

An efficacious means to destroy weeds growing between pavements, alleys, &c., is, to boil 24 lbs. of lime, 4 lbs. of sulphur and 100 quarts of water; allowing the mixture to cool, and adding an equal quantity of water before pouring over the weeds, selecting if possible a sunny day for the work. This will keep the ground clear for a twelvemonth. Where couch-grass is very plentiful, as in a sandy or new soils, what the harrow or hand gathers is collected into a heap and converted into a compost. In Germany, after being well washed and dried, it is greedily eaten by cows and pigs, its saccharine flavor being very appetizing. Large quantities of the root are sold by herbalists in France to be converted into an aperitive and refreshing tea. It is now a common practice to place a lump of chalk, as well as a piece of rock salt, for cattle to lick; the chalk has been found to act beneficially on the liver and the blood.

In Italy much attention is given to the subject of the increasing exhaustion of the soil, caused by the sale of produce and the absence of suitable return manurings. Many Italian farmers find great benefit by falling back on deep cultivation, in order to allow the air to enter freely, and to act on what they call the "Virgin layer" of earth, between the surface and the sub-soil; it is not fertilizers the soil demands, but agents, such as air, and the free circulation of water, that will act on inert fertility. Prussian agriculture is relying less upen cereal crops, and more upon meat, milk, and cheese; the agricultrual clubs continue to purchase and hire out the services of first-class bulls and stallions, and the ambulatory lectures are a practical success.

Paris, Dec. 26th, 1874. F. C.

Correspondence.

A Few Practical Suggestions Touching the Management of Negro Labor.

To the Editors American Farmer:

Persons employing negro labor should bear in mind that the power of coercion has passed away forever. Moral suasion is now the only means left for the management of that kind of labor. Fortunately it is the best means under nearly all circumstances. Even the beasts of the field are not insensible to kindness and gentleness. On the other hand, harshness, injustice and cruelty never accomplish any good, and are generally the prolific sources of losses, troubles and difficulties.

A man should never correct a child or a servant while under the influence of passion or in the presence of others. He should always wait until he has become perfectly cool, and then avail himself of the first suitable occasion, when the offender is alone, to administer such reproof as the offense calls for. This should be done in a mild and quiet manner, but with firmness and decision, taking care at the same time to convince the offender that he has done wrong and deserves reproof. If this does not have the desired effect, and the offender is hopelessly incorrigible, the best way then is to have as few words as possible, but at once settle with and discharge him. Any resort to harshness or abusive language is almost sure to do mischief, and sometimes involve serious troubles and difficulties.

In his general intercourse with his servants, the master, whilst always maintaining the dignity and superiority of his position, should be mild and kind in his manner and words.

In giving his orders he should never be domineering nor assume more authority than is necessary. "I want you to do so and so;" or, "You had better do so and so," are very suitable terms to be employed in giving orders.

Furthermore, the master should be kind and accommodating to his servants, and be always ready to do them a favor when in his power.

When sick he should visit them, and see that they do not suffer for medical and other needed attention. A loaf of bread, a bottle of whiskey or wine, or something nice for them to eat, will be very grateful to their feelings, and will, in time, tell for good in their future conduct.

In further treatment of his servants the master should endeavor to be prompt and punctual in paying their wages according to contract, and should always pay them in cash when possible. When settling their accounts pains should be taken to have every item of the account correct; and if they should happen to forget or not understand any thing, he should take pains and explain it to them. By observing these rules the employer will soon gain their confidence, and never afterwards have any difficulty in making settlements with them.

When anything other than money is furnished them, the master should never be tempted to charge them more than a fair price.

This kind of treatment will have the further good effect of enabling the farmer to get the best hands and to procure them whenever he may need them.

Every practical farmer should maintain order and discipline on his farm, and certain rules and regulations should be established and strictly enforced.

Order and discipline are necessary adjuncts in every kind of business. Talking whilst at work should be prohibited. Negroes have a great deal of "jaw," and will talk incessantly if allowed to do so, greatly to the detriment of the master's interest. Regular hours for rising, feeding of teams and starting to work should be fixed, and the hands should have a specified time allowed them for rest and eating their meals. Half an hour for breakfast and one hour for dinner in winter, and the same for breakfast and two hours for dinner in the summer, is generally regarded as sufficient.

In order to enforce this rule strictly and uniformly, it would be very well for the master to keep a horn and blow it as a signal. Hands having charge of teams require a little more time. Ordinarily it is best to rise early and all hands get their breakfast before going to their work, especially in winter, or when their work happens to be distant from their dwellings. Other regulations suited to the peculiarities or condition of individual farmers, and which will readily suggest themselves, should be understood and adopted. These rules and regulations should be clearly understood and agreed upon in the start, and afterwards strictly enforced.

Persons employing negro labor should in the start provide comfortable and convenient dwellings for them and their families. These dwellings should have attached to them a few acres of land for a garden and patch ground. They should be allowed the privilege of raising fowls and a hog or so, and of keeping a cow. No charge should be made for rent,—for here in the South, where every farmer has more land than he can cultivate, and wood in abundance, he can very well afford to furnish such things free. In the employment of negro labor it is economy to select the best hands, even if it necessitates a higher price. Men of families are preferable, for the reason that they are more apt to remain until their time is out, and are generally more reliable in other respects. Here in Virginia, farmers find it best to engage only about half or two-thirds of their labor by the year, leaving the balance to be employed by the day.

Having disposed of these preliminaries, I come now to the consideration of the most important part of the subject, the key to the position, and that is how to make negro labor profitable. This can only be done by the strictest personal attention to them. The great mass of negroes will not work faithfully unless they are strictly attended to. The master's presence and attention is always necessary, not only to keep them up to the work, but for the further purpose of directing the operations and seeing the work properly done.

"The master's eye is equal to two hands," is a good old truism. Negroes, generally, exercise no discretion in the performance of their work, and the personal attention of the master is *always* necessary. Your rules and regulations cannot be enforced without it, especially in the matter of talking. The master's presence is the most potent thing in the world in bridling that unruly member, the tongue. In the experience of this writer, he honestly believes that in many operations on the farm he can have nearly double as much work done whilst present than in his absence.

Negroes, generally, have great propensity for killing time, and they are constantly on the lookout for occasions to do this. In eating their meals, in passing from one place to another, and in many other ways, if indulged, they will waste a great deal of time. It often happens that when a job is finished in one part of the farm it becomes necessary to remove to a distant part to commence another. In such a happening the master should never take the lead, but should always remain behind and bring up the rear, in order to hurry up the column and prevent straggling. Negroes often get into the habit of going out into the bushes to respond to the calls of nature when there is no such call. When suspected of this they should be watched, and the habit broken up if found guilty.

In conclusion, let me urge upon our Southern farmers the great importance of giving to their business their constant personal attention. A man can attend to his own business much better than another can for him. Personal interest is a great incentive to human action. It sharpens the wits and stimulates the energies in a wonderful manner. By doing so he saves the expense of employing an agent or overseer. His physical system is invigorated and he escapes the pernicious influence of indolent and luxurious habits.

Our people are too much in the habit of hunting and fishing, of riding about, visiting public places, and lounging about little country stores. Let them quit all such bad habits, and betake themselves manfully to work,—for it is only by manly energy, industry, economy, and good management, that we can recover prosperity and happiness. The experienced, critical eye of a business and observing man to direct is always needed. A great deal more work is well done and much better done thereby. Labor and attention are indispensable to success in every department of business.

When Adam transgressed in the Garden of Eden, and thereby became sinful and corrupt, God saw that a life of labor and activity would best promote his happiness and well being, and hence the Divine command, "Thou shalt eat bread in the sweat of thy brow." Ever since that time labor has been the great universal law of our being. God has been very kind and provident to his poor fallen creatures in this world. He has provided everything necessary for their happiness and well-being in this life; but these blessings have not been given in such a shape as to preclude the necessity of labor. They are mostly given in the crude state, and we are required to labor in order to utilize them. As an instance, iron, which is so indispensable i civilized life, is not furnished ready wrought ou into plough-shares, axes, and hilling hoes, ready for use. In order to utilize it we have to dig down into the bowels of the earth for the crude ore, and by a laborious process bring it into condition for practical use.

God has given man the fruitful soil and the beneficent seasons, the early rain and the latter rain, but he requires man to subdue the earth and cultivate the soil, in order to gather the precious fruit thereof and reap the golden harvest. God has commanded us to labor. He knows what is best for us. Let us then go forth cheerfully and faithfully, obeying the command of God, for in doing so we have the promise of his blessing, which "is more precious than gold," "Yea, than much fine gold." W. HOLMAN.

Cumberland County, Va., 30th December, 1874.

The True Theory of Farming.—No. 4.

Messrs. Editors of the American Farmer:

Before proceeding further we desire to say that wherever the epithet "orthodox" has occurred in this essay it has had reference to the Johnston school. His teaching, if it has not universally obtained, has been avowedly accepted by most writers, and tacitly admitted by all, so far as we are informed, as a compendium of the learning on the subject.

As an intelligent theory, we disown it; and say he not only fails to give us any system, but his views are subversive of all rational system, and in reference to exhaustion, ignore the very object of agriculture. We therefore feel somewhat heterodox, and expect to receive the execrations of a school we seek to destroy.

The traditionary story of the exhaustive effects of lime is handed down by the learned Johnston, newly vamped by elaborate explanation, from the very seat of learning where he declared it more lasting in beneficial results than any other manure. Notwithstanding his wordy explanations, it is difficult for us to understand how he could stand on England's soil, continued fertile under the use of lime for two thousand years, and add the influence of his great name to a dogma so utterly contrary to history and the facts blazing all around him.

The most plausible explanation of the theory is found on page 266, (El. Ag. Chem.,) the substance of which is that "lime promotes those chemical changes of the organic part of the soil by which it is rendered more serviceable to the growth of plants. * * * Again it acts on the mineral matter of the soil and prepares it formore abundantly feeding the plants."

"By this mode of action, therefore, arises the exhaustion." According to this reasoning, to *create* is to *exhaust* fertility. The argument applies with equal force to all fertilizers, and to every conceivable means of increasing fertility. It moreover implies an ignorance more deplorable, and more injurious to the general welfare, than that of the miser who starves himself to increase his useless hoard. The very conditions he argues as exhaustive to fertility, are those only in which fertility was ever known to exist. The moment the changes in the "organic" and in the "mineral" matter (which he ascribes to the influence of lime) cease, the soil becomes barren as adamant—no matter how greatly stuffed with the locked-up elements of plant food. The vital force of the tender plants is unable to break up the combinations of such a soil; they can only snatch their small allowance during the mutations of an active soil. When the soil ceases to act, the plants cease to live.

What we have thought necessary to say, may seem to discover a dispositon to quibble, or to found a rational theory on the weakness of others. We are persuaded, however, that such an attempt would prove as futile as it is unnecessary and wrong. It is expected to demonstrate the true theory affirmatively, as already foreshadowed, neither fearing nor yet disregarding the views of others. The arguments of the Johnston school may be fallacious and absurd, as they appear to us, and yet their conclusions might be correct. Both may be wrong, without making ours right.

The wearisome digressions we have almost unawares run into, have been inspired by the necessity of removing false impressions created by dubious language, arising from the carelessness of some, and the lack of moral courage in others, to confront error and do battle for truth; or from the servile conformance of their reasoning to the known opinions of bigoted patrons.

The difficulties that beset a fearless searcher of truth, in reaching correct and definite conclusions, arise, chiefly, from prejudice engendered by early impressions and associations; the failure to keep steady in view all the circumstances on which the judgment is to be formed; and the want of exact definitions to our words.

Johnston, and necessarily his followers, are conspicuous victims to all these difficulties.

Words are arbitrary signs of ideas. By common consent and custom they produce certain impressions.

Tyrants, who delight in torturing subjects, frame their decrees so as to decoy victims to their thirst for blood. Temures played on words, when he promised the garrison at Sebastian that if they would surrender "not a drop of blood should be spilled," and, after their surrender, buried them alive. We are not surprised at this, nor at the fool who saith in his heart "There is no God;" nor at the pliancy of the demagogue to the public ear; the one lies, because he is a murderer; the other, because he is a fool; and the third, because it is his trade.

But when a learned professor essays to found a system of science to guide us in the support of

our families, we expect a reasonable certainty and consistency of language, in the light of customary usage, or in the technical sense of the science. To "rob" is the sign of an idea, and produces emotions of disgust and horror; Johnston employs it to denote the highest conceivable benefaction to mankind.

If he had said that, so far as the crops exercise any control, their tendency is to enrich instead of robbing the soil, it would have been as true, in theory and fact, as the other is false and absurd. This, with his ill-selected rhyme, and his making "fertilize" synonymous with "exhaust," creates distrust of his qualifications to found a system of Agricultural Science equal to its importance. It is not singular the facility of the great teacher attracts many followers;—to go any way is to be his follower. The wording of a science is like laying the stones of an edifice; if it be defective or unskillful the temple will crumble. The poetry may be viewed as the ornament; if it be out of taste it will create, in judicious minds, emotions of contempt, and subject the work to the animadversion of critics.

I know we may be censured for holding a man of Johnston's ability to dull meaning of words, and judicious selection of poetry; but if we allow him with impunity to deal in riddles and mystic sayings of ancient origin, we will fall behind the age of discovery and advancement in other sciences, and become the objects of universal contempt.

The ignorant will clothe these wonderful sayings, whose origin is beyond the memory of man, with oracular significance, as they are wont to ascribe wonderful profundity of judgment to lawyers, who early learn to look wise, but never to make an argument.

Although when Johnston wrote, it was well settled, and he taught that lime is manure, and constitutes in itself essential food for plants, from his loose mode of expression, his followers of conspicuously less diplomacy than their master, crowd upon us still more incongruous notions of its effects, engendering all sorts of fancies about its utility and most destructive tendencies.

He treats specially the exhaustive effects of lime, in his Elements of Agricultural Chemistry. On page 267 appears his eloquent peroration, closing with the following blazing couplet, in which he first assures us there is "much wisdom:"

"Lime and lime *without manure*
Will make both land and farmer poor."

Whilst he assures us there is "*much wisdom in the rhyme*," he fails to tell us in which of the English pastorals it is to be found.

We do not seriously object to a little poetry at the close of an important subject, but we would like it of a good quality, or to have emanated from the known inspired muses; or, in failure of legitimate origin, if we are to have a bastard scrap, we would prefer it should possess internal evidence without prosaic assurance of its wisdom.

Let us examine it to see if evil could probably flow from it. At first glance, it would seem too silly to create any figure in agricultural channels, and ought to escape notice. We might safely allow a learned professor to talk without meaning, but some meaning will attach. If this couplet means anything, it is that lime is not a manure and in the absence of manure it will make the land poor. The first is false because it is a manure; the second is false because it could cut no figure in the soil without manure, and absurd, because it is manure, and therefore no soil is without *manure* that contains it. It also implies that without lime manures may be dispensed with, or that in its absence the lack of other manures will not make the land poor.

We take no note of teachers, unless, from their reputation or their position, they are capable of doing harm.

Accordingly, to pass the lesser lights, we find an epitome of Johnston's theory of exhaustion in the report of the learned official chemist of the United States Agricultural Department, on page 93, Report for 1871, which winds up with the essence of "the rhyme," in language unborrowed from the legends, as follows:—"Lime is not really a manure; it does not increase the stock of plant-food on hand, but only hastens the expenditure of that material."

This publication is paid for by taxes on the people, and emanates from the highest source in the land. It is therefore entitled to confidence, and ought to be read by every farmer.

We will not disgust the reader with comments. But suppose every farmer in the United States reads and believes that *lime is not manure;—does not increase the plant-food in the soil, and hastens the expenditure of what exists in it*,—is one to be found so consummate a fool as to put it on his land?

Is it squeamish to desire things to be called by their right names, and to insist on a higher order of pastorals in the prototype of a science, since Johnston's rhyme "of much wisdom" has proven the source of a shoreless river of evil?

FREEDOM.

Making Super-Phosphate on the Farm.

Messrs. Editors American Farmer:

This matter of writing being something foreign to my occupation (being a tiller of the soil and a granger) I always feel a hesitation in presenting anything for publication, yet, when I reflect that every man's experience is worth something to his fellow-men, I cannot conscientiously (when called upon to communicate) hide my little knowledge under a bushel. Though engaged in the phosphate business as well as in farming, I am always willing to aid those who are striving to make farming pay, and to advance the science of agriculture. I will, therefore, (at your request) give you what I consider the best process by which bones may be converted into super-phosphate at home. Though I claim that I can furnish the article named in a better state and as cheap as it can be manufactured at home, yet should any one prefer to experiment a little, they can thus proceed: Dig a pit in the ground 7 feet long, 2½ feet wide, 2½ feet deep. Pave the bottom, and build up the sides with brick or stone; then plaster the whole interior with mortar; allow the mortar to become partially dry before it is used. Sulphuric acid chars wood, and dissolves vessels made of iron, copper or zinc; but its action upon the plastered walls of the pit is only to convert the carbonate of lime into the sulphate, which forms a hard encrustation on its surface and prevents the further action of the

acid. First pour in three bushels of ground bones, and add water until the mass is well saturated, stirring as the water is poured on; then pour on half the weight of the bone in acid of 66° strength, and half the weight of the bones of water. Pour in at the same time, but not from the same vessel, as it would endanger your vessel to mix the two together, before pouring into the pit. The acid as it combines with the water acts upon the bones, evolving much heat and gas. The gas given off is carbonic acid gas, which is expelled from the bones while the double phosphate and carbonate of lime are converted into super-phosphate and sulphate of lime. To insure thorough decomposition the bones must be well stirred during the process, and great care should be taken with the introduction and handling of the sulphuric acid. It burns clothing wherever it may touch it; and upon the skin, besides burning, often creates ulcers. To facilitate ease in handling, and as a dryer, wood ashes can be added in any amount desired, after the action of the acid is over—say six hours. But it is better, should time permit, to remove the super-phosphate pure and allow it to remain in bulk two or three weeks before being used. An old iron shovel can be used for mixing during the process; the shovel, though acted upon by the acid, will last some time, and the addition of a little common salt will counteract the ill effects of the small amount of iron dissolved. Should you wish to dissolve bones in their natural state, unground, you can do so by substituting hydrochloric acid for the sulphuric acid. But the process is a tedious one, owing to the slowness with which the bones dissolve; all the mineral matter will, in time, be dissolved off, and the gelatinous matter be left, in the shape of the original bones. Sulphuric acid cannot be employed to dissolve whole bones, owing to the fact that the plaster formed during its decomposition coats their surfaces so as to prevent further action of acid upon them. Your friend,

EDW. B. EMORY.

Queen Anne's, Md., Jan. 17, 1875.

What shall we do with the Dogs?

Messrs. Editors American Farmer:

How shall we suppress "Dog-breeding"? This is a subject the very shadow of which our legislators are always ready to dodge. When it does come up it looms before their imagination and towers with an aspect most appalling. Let us try to devise means to pacify and encourage; to bring out their manhood and enable them to view the farmers' interest in regard to one of their main branches of industry in a becoming manner.

Many are beginning to see the greater advantages of sheep-raising, and but few have the courage to go into the business, whilst unnumbered and unrestrained half-starved curs roam the fields of the farmer, killing sheep and spreading hydrophobia. Without protection there is no use to make an effort in this direction; partial, inadequate legislation will not do.

A writer in the last *American Farmer* says: "When we properly appreciate the great service sheep are to us, away goes the dog, and we will have an effective if not a popular dog law. Here lies the great trouble, the dog. But let two-thirds of us keep sheep, be it ever so few, and then we can in a measure overcome the dogs."

A writer in the Staunton (Va.) *Vindicator*, says: "To remedy this evil I suggest: Let the legislature levy a tax of one dollar on all dogs. Let some one in each county be especially appointed to collect this tax. Pay him 50 per cent. for collecting it. Authorize him to kill every dog, male or female, on which the tax is not paid. Let him receive fifty cents for killing it. Make it a misdemeanor, punishable by fine or short imprisonment, for any one to interfere with him in the discharge of his duties." If dogs are not property, *they are a public nuisance* amenable to the law, and why cannot our legislators treat them as such?

A Gordonsville paper says, "TAX SHOT GUNS as well as dogs." We think he is right. But O! that lever would throw our legislators sky high!! We believe the editor of the *Charlottesville Jeffersonian*, after all, has hit the nail on the head as it regards dogs. His plan to relieve the State of worthless canines, and thus gradually remove the pressure on sheep husbandry, is admirable. It is simply to "tax all *female dogs* to the amount of fifteen dollars." This would relieve our law makers; as the number of their constituents owning *bitches*, would be too small to give them any uneasiness; and the great body of dog owners would care but little about a matter that would not directly affect them. We think, probably ten dollars a head for bitches would be sufficient.

With such a law we should soon have a superior race or superior races of dogs, for very few would care to pay the tax on common stock, and all bitches of this class would soon go where the woodbine twineth not; and thus the common cur or "*cuss*" of our State would gradually disappear and worry sheep no more. J. FITZ.

Keswick Depot, Albemarle Co., Va.

Dogs and Sheep.

How an English Immigrant looks at it.

Messrs. Editors American Farmer:

I have lately come from England, and like the appearance of the country so well that I have taken a grass farm, and intend going into cattle and sheep farming; but through the aid of your columns I must draw your attention to a very serious grievance—namely, the useless dogs that are allowed to roam about the country, generally belonging to the negroes, and the allowing the negroes to carry guns and revolvers. Why not, as in England, put a heavy tax on both these nuisances, say three dollars each dog on any person having one or more dogs, and the same on any firearms? The State, I see, is dreadfully in debt; these two taxes would very materially assist in diminishing it. It seems a very hard case that when I go to bed, or even leave my farm, that I have a very well-founded cause for fear of depredation. The county in England issues a license the first day of each year, and any person applying for it takes a receipt for both dogs and guns; and it is the duty of our county police to call on each person for their receipts, and tally the number of dogs and guns. Cannot this plan

be adopted in Virginia? I may say that I have been down to southwest Virginia for sheep without success. The general complaint is this:—"We are afraid to breed sheep on account of dogs." What is the State losing by this? Thousands of acres of good land are lying idle from this cause. The Legislature at Richmond must be perfectly insane to tolerate this nuisance.—Further, I cannot or will not recommend any of my fellow-countrymen to come out here to invest their capital till this dog and gun nuisance is taxed, however good the prospects appear. So you see, badly as the immigration of good substantial farmers from England is wanted, their capital is diverted to other colonies under the English flag. I have no cause to find fault with the country; it is indeed a highly favored spot, and only wants skill and capital to make it blossom in real truth like a rose. Therefore, do try, sir, your utmost endeavors to get this evil abated. Personally apply to Governor Kemper, and lay the matter before him. Explain the loss the country is every day sustaining, especially through the fear that people have of dogs in preventing their keeping sheep. I have become a subscriber to your valuable journal, and every page is full of good sense and practice. Now, sir, I give my name and address, but you must promise me not to publish either if you reduce my remarks to your journal, as there are people in the neighborhood who would probably make it very unpleasant for me. Those who keep dogs, I mean.

I very much enjoyed my ride to southwest Virginia. The rich grass land, grazing such numbers of splendid short-horns, combined with the rich valley and mountain scenery, is a most pleasing picture to an agriculturist. The hospitality and courtesy shown to me, a stranger, leaves most pleasing reflections. Especially I cannot fail to name Mr. Look, in the well-named "Rich Valley," whose herds, both of cattle and swine, would amply repay a very long journey to go to see. I wish you a very happy new year, and every success to your valuable journal.

I may remark, in conclusion, that the only thing that checks my happiness is the being absent from my relations and friends in my "dear old country, England." I remain yours very truly,

— —.

Orange County, Va., December 31st, 1874.

P. S.—Since writing this, a neighbor, an Englishman, has just lost six sheep by dogs.

[From a paragraph in his message to the Legislature, there can be no doubt of the sympathies of the Governor of Virginia in this matter. The trouble is there, as here, with the 'statesmen" in that assembly.—*Ed. A. F.*]

The True Theory of Farming.

Reply to G. B. S.

Messrs. Editors of the American Farmer:

I have read with much pleasure your notices by way of calling attention to the True Theory. I have also read with interest your kind suggestion that you are not sure you can endorse me throughout, and that you may feel called upon to review some of my positions, and that they will probably be assailed by others. I am glad to be able to draw an inference that you may approve of *something* I have said. I have obtained a great deal of information from the *American Farmer*, and learned to look upon it as safer in counsel than any journal I read. To hope for its endorsement in future, therefore, to any extent, is a source of unfeigned pride and encouragement.

But to take a philosophical view of the subject,—I should consider what I have to say as not worth the saying, if it should in all its parts meet the ready approval of everybody. Whilst I shall ever cherish discerning approval, it is not the spring or object of my task.

Nor can I hope to carry on an offensive war against a well-drilled army without opposing swords. Servile drill in science is its greatest enemy, and what I most despise. There are more persons pursuing error than follow truth; and perhaps as great a preponderance in agricultural science as in any other branch of human knowledge. If one, therefore, rush from the feeble band, indiscriminate, against the numerous host, he may expect to clash with steel wherever he points his lance; but though he come off with broken shield and shattered helmet, truth may still survive, enshrined in sacrifice.

The mission of The True Theory is the "greatest good to the greatest number." The author does not expect to find this in limpid waters, nor to present it to his readers in perfect purity, unmixed with harm. He has been unable to find a "rose without its thorn."

With our imperfect means of acquiring knowledge, and of its adaptation to human wants, such phantasmal dreams have never yet been realized. To avoid all offense and to do no harm, is to do no good.

There is a dream of pleasure in droning life, that is waked only in hugging the phantom of other brains. But there is real life unfelt by drones, in pressing forward with the means God has given; and should the good by his blessing overbalance the evil, it is a victory in the interests of humanity.

If health and leisure permit, The True Theory shall be a tree planted in the face of all opposing force, whose roots, I trust, will sink deep into life-giving soil. In the nature of things, it may bear some bitter fruit, and imperfect symmetry of branches. These may not withstand the hosts of assailants, but they cannot rive the body by mere force of numbers, with superannuated weapons. That I have not been unmindful of the difficulties that environ me, appears from the second number of the series, wherein I declared I could not hope, from the present chaotic learning on the subject, to discover the true science in all its bearings, but that "I may resolve that my errors shall not have been traditional, for I deem it more excusable to search for truth and to miss it, than servilely to follow, apologize for, or to propagate the errors of others." But I confess my philosophy did not dream that The True Theory would be blown away by one single expiration. Yet G. B. S., doubtless in his own estimation, has exploded with easy volubility what has taken many long years of toil for me to learn. He charges me, in substance, with "creating a fantasy, in order to dispel it;" with

basing a theory on an experiment of which I doubted the correctness; of imprudently basing a proposition on insufficiently proved premises; of resorting to the "general and loose" remark of "common experience," when, in his estimation, I should "let the *axial* basis of my propositions be demonstrated results and stubborn facts;"—and finally he is "anxious that The True Theory of Farming shall not be built on the baseless fabric of a vision." This correspondent having taken no issue on any proposition I have yet advanced, under the rule to notice nothing but substance, his attack would pass unnoticed, but for the importance attached to it by your incidental reference to it in these words—"elsewhere will be found an illustration of the closeness with which the (my) series is being followed."

Although I do not think you intended it to be so, this will be taken to imply that in your judgment this correspondent has closely followed the series in arriving at his inferences. If your readers, generally, repose the same confidence in your opinions that a long acquaintance with the *American Farmer* has inspired in me, they must conclude that The True Theory is damaged by the vigilance of G. B. S.

I therefore simply and reluctantly call attention to the closeness with which he has pursued The True Theory, and ask of him still more attentive reading in future before denouncing so severely. But that he may know I can separate the sweet from the bitter, I thank him for the polite compliments interspersed in the severity of his criticism.

He quotes me correctly, as follows: "By experiments, as that of Lampadius, heretofore referred to in reference to the waste of lime, and by common experience, it has been ascertained that, in general, the waste of soil food is a hundred times greater than the amount secured and *saved* by conversion into plants." He then says my ability in exposing the fallacies of others, &c., will fail to "shield me from the imprudence of basing an *axial* proposition upon insufficiently proved premises." This, and what he subsequently says about Lampadius' experiment, so far as I am able to construe his language, is a sort of circumlocutory charge that I based the proposition of the loss of lime on the experiment.

The attentive reader will perceive that the results of the experiment had no necessary connection with my conclusion as to the amount of "*soil food*" wasted.

I did not say it was ascertained by that experiment—but that "by experiments *as* (such as, or like) that of Lampadius in reference to *lime*," while I was referring to *soil food*, which embraces many other things.

Let us examine the proposition as an attentive reader would analyze it. "The waste of soil food is a hundred times greater than the amount saved." What is said in support of it? Is Lampadius' experiment urged in its support? Certainly not. But it is said—"By experiments," (not that of Lampadius, but by many experiments) "*as*" (like) "that of Lampadius in reference to lime," (not to any other soil food) "and by common experience it is ascertained," &c.

If my reviewer understood the proposition, as he puts it, to have been based on the experiment, he should have objected to it as *fallacious*, even admitting the experiment to be correctly reported; because the experiment was "in reference to lime" only, whilst my conclusion embraced the waste of all other soil food as well. I fail to comprehend how attentive reading could overlook the palpable fallacy of concluding, from an experiment "*in reference to lime*," the amount of Potash, Magnesia, Phosphoric Acid, Sulphuric Acid, Soda, Chlorine, &c., lost in cultivation.

But suppose I had drawn my conclusions in reference to lime only instead of soil food generally, and had said this particular experiment and common experience proved the proposition, would it not still seem like "Much ado about nothing," for a reviewer to thrust in an interlocutory feeler, followed by sweeping denunciations, without denying anything or tendering any issue of any sort?

He might with more show of reason have launched in on a statement I *did* make at the time I first mentioned the experiment. I then said I doubted the correctness of the report of the experiment, (as I doubt anything coming through a slave to public opinion,) and yet I said it proved that the soil under the circumstances required an annual application of 1,000 pounds of carbonate of lime per acre to perpetuate fertility so far as lime is concerned. And so he might have defended the farmers from the consequences of a mistake I made in the calculation there, which he has left for me to discover. I do not now correct it, for two reasons: 1st—For the purpose I used it, the error can lead to no mischief. 2nd—Because I choose to leave it with some other crumbs for hungry critics. To escape punishment for a positive statement, at the time I said I doubted the correctness of the report, that the result of the experiment as reported proved a certain thing, and for an egregious blunder in calculation at the same time, and to be savagely hunted down for a subsequent mere incidental allusion to it by way of recital and comparison only, is encouragement rather to go astray than to avoid error.

G. B. S. reminds me that the general and loose remark of "common experience" is not admissible as the basis of so sweeping a theory as I seem to be approaching. I regret to have raised such alarming forebodings. Yet, however loose he may imagine it to be, if The Theory should be truly founded on "common experience," not much apprehension should be felt.

But he insists that instead of the loose basis of "common experience," I should "let the *axial* basis of my propositions be demonstrated results and stubborn facts."

I confess all this rather staggers my comprehension—"*axial*" *basis—demonstrated results and stubborn facts*, as opposed to experience, or otherwise, are rather hard words to form the tone of my investigations.

And, besides, he will not allow me to build The True Theory on the "baseless fabric of a vision." Having been acquainted with this since school-boy days, I shall avoid such a structure as much as possible, but cannot promise to keep within the "axial basis" scope.

That it has been ascertained by common experience is either true or false, and the hard words he prescribes not appearing to fit, I know of no better expression.

Suppose I say it has been ascertained by common experience that all men must die—shall I array the medical faculty in their abortive efforts to perpetuate human life, or bring the dead people out of the earth as the "axial basis of demonstrated results and stubborn facts" to prove the experience? G. B. S. must prescribe a simpler formula, or I must trudge along in my "loose" way, taking my chances with *less attentive* or more charitable readers.

That I may not seem to pass part of the lecture of G. B. S., I will say that the middle part of it, about the requirements to make the "experiment of any value, &c.," discovers a blissful unconsciousness of *how little we do or can know of endless mutations in the soil.*

The readers of the *Farmer* must blame you, and not me, nor G. B. S., for being bored with this letter for the reasons above mentioned.

FREEDOM.

Live Stock.

Some Experiences in Sheep Raising.

Messrs. Editors American Farmer:

Whilst I believe sheep are to be the great lever by which our fallen fortunes and exhausted lands are to be reclaimed, yet I do well know, sheep, like all other great blessings of our Creator, require timely care and ample food to make them profitable. Without both of these absolute necessaries no reflecting man can hope but for like disastrous results as our *morus multicaulis*, hired labor, spurious manures, misapplied labor-saving implements, which so many of us will remember with deep regret. I will endeavor to show, by what I have known of the sad experience of others, and what I have done myself, for the benefit of all who are about to embark in this most pleasant and profitable or perplexingly distasteful and ruinous business of sheep husbandry. In my earlier and more prosperous days than these, an old and highly esteemed friend (long since dead) induced me to purchase a snug little place near him, with the expectation of adding to it, but, failing to do which, I declined going there. My warmly attached friend visited me, and informed me that an adjoining neighbor would sell me an old field of some 300 acres of as poor land as I ever saw, very cheap. (Query: Can any such land be cheap at any price?) I asked what could I hope to do with it. He warmly replied: Make a fortune by putting on that poor old field 200 ewes in lamb, which would give me 200 lambs the next spring, one-half of which would be ewes. The next spring they would give me 300 lambs, and thus increase yearly. But how could I feed them? The briars would keep them well in summer and the pine tops in winter, and the rapid increase of fertility in the soil would prove fully ample for the increase of the flock. I asked, how long would this continue? He exultingly said, until there would not be room for one of them to turn around. I so laughed at it, that he resolved to show me it could be done, and purchased 500 to begin with on far better land. In three years they dwindled down to about 300 of the meanest sheep I have ever seen. My friend became paralyzed and disgusted; asked me to sell them at a dollar and ninepence a head. I did so to a mutual friend of ours, who said any sheep were cheap at that price, and invited myself and others to dine with him the day he sent for the sheep. Late in the evening, sitting on his front porch, we saw the long-expected sheep wearisomely approaching his gate. He loudly called for his old man Abraham to get his bob-tail pony and salt and welcome them into his fine field of clover. We saw him salt them, and on his return, riding rapidly around the yard, our host called to him—"Come by and report. Well, Abraham, what do you think of my sheep?" "Sheep! why, master, I aint seed no sheep." "Abraham, we saw you salt them." "Master, do you call dem dar things sheep? Dey is de merest symptoms of sheep dis nigger eber see." I think 20 died that night, and soon all disappeared.

This is one of many instances I could give to show sheep, to be profitable, must be properly cared for. I will now show my own experience:

I purchased ten ewes of an old friend of my father's, I picking five and he five from the tail of the flock, some of which I had to lighten of their tags before venturing to drive them four miles home. Some ten years afterwards this same friend spent the night with me. In returning to my breakfast I found him admiring the finest flock of sheep I have ever had. He asked if I would kindly let him have a few of my improved breed to improve his with. I asked him what he had done with his flock from which I had purchased my ten. He had them. Well, then, you now have the same breed of mine, for I have gotten no other sheep since; and if he would treat his as I had treated mine his would soon be as good as mine; or, if he had mine and treated them as he did his, they would soon be as his then were. Care and attention are as absolutely necessary with sheep as they are with every other good thing, to insure pleasure and profit. I have been profitably engaged in sheep for over forty years, and have found them less liable to disease, yielding more profit and pleasure, than any other stock, and certainly requiring far less laborious attention. I have never had any disease in my sheep. They seemed declining at one time during the war, when salt could not be had, but on getting the salt they soon recovered. I frequently use red pepper, mixed with their salt, which I find good for colds or sniffles and their general health. One winter they got to ivy, of which they at once were relieved by a couple of raw eggs. I lost more sheep from over-fat than from all and every other cause, and have never lost but one from dogs, usually keeping them with cattle at night, which I think a great protection from dogs. One very cold winter, when the ground was covered a foot deep with snow, the streams locked up with ice, I visited an old friend, proverbial for knowledge and success with sheep. His shelters were ample, an abundance of all kinds of feed, and yet his sheep were diseased and dying. For this he could not account; but after riding over the lot of some ten acres I could not see where they could get any water, and told him I had no doubt the want of water was the cause. He seemed greatly surprised, and said he had never seen nor heard of a sheep drinking, and could not believe it. He was then over

seventy years old, a knowing, well-informed man. I advised him—let us beat a path to the creek, and cut away the ice, and you will see them drink. We did so, and I never saw sheep scuffle more desperately than they did for the water; and his flock were soon restored to perfect health. Thus showing, however old and experienced we may be, we are never too old nor knowing to learn more, if it may be from only a thinking boy.

I will now close this already too long an article by advising all men everywhere, but especially those of Albemarle, my own, my native county, many of whom are now going very largely into the sheep business, to carefully read the able, sensible and practical articles of our friend Mr. John S. Goe, and others, written for your *American Farmer* for 1874, and begin with only as many as they know they can well care for and feed, and increase their flock only as their means and knowledge increase, and they will be well pleased with the pleasant and profitable sheep business. As to the grasses, I will try my hand for your March number, only now venturing to advise all who are living where the chinch bug and grasshopper may prevail next season to sow more clover and less of the grasses, as I do know the chinch bug will entirely destroy the grasses but will not touch the clover, and thus I believe of the grasshopper. With best wishes for your health and highest success of your *American Farmer* and our dear old country, with regard increasing with my years, yours, most truly,

GEO. C. GILMER.

Near Charlottesville, Virginia.

Horticulture.

The Maryland Peach Show.

As will be seen from the proceedings of the Horticultural Society, it has decided that this proposed show shall take place in August, provided some aid can be secured from the Fruit Packers' Association of this city.

As this, it was understood, was pledged in advance, we presume the question is settled. This important interest of our city is conducted by gentlemen of intelligence and sagacity, who will, no doubt, witness with much pleasure a fine show of the fruits in which they operate.

We trust, therefore, that the Society will with energy and spirit make all its arrangements on a liberal scale, such as is demanded by the importance of the movement and its significance to the State.

Growing Gooseberries.

Editors American Farmer:

In answer to your inquiries about gooseberries, their growing, picking, and marketing for profit, more particularly concerning the merits of the Early Kent, advertised in the *Farmer*, I can say I am very sorry for my pocket's sake that I have not had more experience with them—had all mine been of that variety. Thinking they were not profitable for market purposes I bought some time ago fifty Houghton Seedling for family use, and at the same time tried to get some of the Early Kent from an Englishman near me who had them, but who would not dispose of a bush. Having seen the fruit as offered for sale by him, I was forcibly struck with its superior size, as being much superior to any that I had ever seen. He told me that he had cultivated them for a long time and had never seen any mildew on them, and that they always bore a good crop. This made me the more anxious to get them, and shortly after, when he sold the place, I succeeded in getting seventy-five bushes, which were very small at the time. Consequently I had but little fruit to sell until the summer of 1873, when they were then about four years old; and from those bushes I picked three hundred and fifty quarts that I sold, beside using some in my family. They were sent at two shipments, the first bringing 12½ cents per quart, and the second 10 cents. My Houghton Seedlings, which were picked a week after the last shipment of the others, (and as soon as they were fit,) brought 6 cents per quart. That fall I set out about three thousand young plants of the Early Kent, and the next summer they bore some fruit; but of course it was not what it should be, and only brought 8 cents per quart.

I expect to pick the coming season a full crop of perfect fruit from those set out, they having made a fine growth the past season. I have entirely discarded the Houghton Seedling, and do not consider them worth cultivating alongside of the Early Kent *for market purposes;* but if I had them for family use *only*, would not discard them.

I grow them in rows five feet apart, and the plants four feet apart in the row, and prune them sufficiently to work under them with a hoe. I have had but little experience in gathering the fruit, but enough to satisfy me that the system recommended by most horticulturists, namely—to use gloves, and strip the bushes of both fruit and leaves, and afterwards fan out the leaves—to be a very injurious one indeed to your next crop of fruit. The bush being deprived of its foliage so soon, seems almost to wither, and your next crop of fruit will be so small it will not pay to pick. I always employ women to pick them by the quart, and generally make two pickings of them, and therefore get none but good berries the first picking.

I generally ship them in quart baskets the same as I use for strawberrries, from the fact that they are generally picked when the dew is on them, and it is too wet for the pickers to work on strawberries. Being in such small packages they readily dry without heating, which would be the result if they were put in boxes in that state.

Being so early they are always sold in market for tarts, and not used by the canners. I intend planting more of them, and to give the culture of gooseberries much more attention in the future than I have done, and hope shortly to be able to comply with your request in a more satisfactory manner. I will here state that I am satisfied that the Early Kent is profitable to raise to sell as ripe fruit, from its enormous size and delicious flavor, and also from the fact that I had some ripe fruit taken from some young bushes,

more to relieve them than for profit, which sold for 8 cents per quart, and proved more profitable than 10 cents for green, they measuring so much more when ripe. Wishing you and the *Farmer* a happy new year, I am respectfully yours,

R. S. EMORY.

Kent County, Md.

[Mr. Emory is well known as one of the most enterprising and successful fruit-growers in Maryland. Knowing that the Early Kent gooseberry, which is now for the first time being offered by Messrs. W. F. Massey & Co., originated, or at least was first grown in this country, near him, and that he had tested it, we applied to him for such information as he could give concerning it. With characteristic liberality, he gives a detailed account of its profits with him. A perusal of his letter seems to indicate that gooseberries are a very profitable fruit for market, and that our friend Massey has a very good thing in the Early Kent.—*Ed. A. F.*]

Eastern Shore Notes.

Messrs. Editors American Farmer:

I am glad to see that you are agitating the idea of a Summer show of Peaches under the auspices of the Maryland Horticultural Society. It is about time, I think, that we were showing the New Yorkers where the greater part of their *Delaware* peaches are grown. By all means let us have the show. Though not a peach grower myself, I will do all I can to get our Kent county growers to do themselves full justice.

The Peach Aphis and the Yellows.

One Eastern Shoreman has a level head on the Aphis question. He is evidently on the right scent. We all know how Aphides frequently congregate on the roots of pot plants, and it is to be presumed they will do the same thing out of doors.

Certainly if the feeding roots of a tree are devoured by the Aphis, it is perfectly excusable in having the yellows or any other form of dyspepsia. Let "Eastern Shore" keep at it; I feel confident he will yet find a cure for the "yellows."

Growing Mushrooms.

There is no difficulty in growing mushrooms in quantity if the materials are properly handled and the place suitable, but we have not yet succeeded in reducing mushroom culture to such exact rules as most other branches of in-door gardening. That is, mushrooms will grow large or small apparently by chance. I was much amused in reading an account of an effort made some years ago by an old English gardener to grow some particularly large mushrooms for a premium offered at one of the English provincial shows. His bed was made in an old cucumber pit and tended with care, but entirely failed to produce any mushrooms of gigantic size. The day before the show, in cleaning out some old linings of a cucumber bed he found a lot of enormous mushrooms hanging head down in the brick arches of the pit. These were gathered and brought him the prize as the best mushroom grown. Not unlike the way many horticultural prizes are taken. W. F. MASSEY.

Riverbank, Chestertown, Md.

P. S.—Jany. 10th, thermometer 1° below zero at day-break.

Protection to Orchard Trees near Houses.

To the Editors American Farmer:

Orchard trees set near farm buildings are often injured by carelessness in driving wagons and carts about the houses for the purpose of storage, &c. We have an ice house and fruit house in the orchard, and found by experience something had to be done for the preservation of the trees in that immediate vicinity, and we adopted the following simple device which answered the purpose admirably:

Prepare four cedar, locust, or black walnut posts of suitable length, to be set 18 inches in the ground around the trees, and about 3 feet from them. Have the posts 4 or 5 inches in diameter at the ground; shoulder or reduce the tops to receive caps or railing; 2 x 5 inches for railing, which may be of chestnut, or of the same material of the posts. Bore the holes with a common cap auger, and put the railing on. The posts or stakes may be planted in the ground by means of a hole made with a large crowbar, as digging them would injure the roots of the trees. No ox, or other team, could move these stakes in ice time, or in the fall when the ground is dry and hard. There are other advantages besides protection. A board laid across the railing enables the fruit-gatherer to secure on this his fruit with great ease, unless the trees are very large, and the bruising of limbs by ladders is avoided; and, in case a tree careens from high winds, it can be secured to the railing by soft straps and kept in position. J. FITZ.

Keswick Depot, Albemarle Co., Va.

A New System of Draining for Orchards.

Mr. G. F. B. Leighton, whose reputation is world-wide for growing pears of superb quality and immense size, has been good enough to send us the following account of the mode of drainage practiced by him in his orchards near Norfolk. The paper was read by him at a recent meeting of the Eastern Branch Agricultural Club:

The subject of drainage is of vital importance in this level section of the country. In planting out my pear orchard, drainage engrossed my attention more than any point in my operations, and after much reflection I adopted an auger-hole system under the trees, filling the holes with oyster shells. The effect produced upon the soil is such that I can now cultivate in two days after a rain as well as I formerly could in four days after a similar rain.

Care must be taken that the holes go through the clay, and also that the sand under the clay has a water outlet, which can usually be accomplished by outside ditches. I am of the opinion that you will receive more drainage for the money spent, than you can from any other system. Un-

less the ground is very wet, the distance of twenty-five feet between the holes is ample. I find the punch implement far superior to the old auger for dispatch.

This method of drainage does away with the unsightly and inconvenient cross ditches, leaving a smooth field. I have found an advantage in plowing a field the same way for several years in succession; for instance, lay out the field in lands of one hundred feet in width and turn the furrows together in the centre, and in a few years the field will become gently undulating, but not sufficiently so as to interfere with the operations of the mowing machine, while the surplus water is more readily passed off. I regard deep outside ditches as indispensable.

Maryland Horticultural Society.

The regular monthly meeting was held at Raine's Hall on the 21st ultimo. Mr. James Pentland moved that the selection of a hall for the annual exhibition in September next be referred to the executive committee. Adopted.

A letter from Mr. Charles Reese was read, approving of the project of the erection of a Horticultural Hall.

Captain Snow, of Harford, said that while he favored the project of building a hall, he was in favor of first getting the society on its feet. It would cost a great deal of money, and he could not tell where it was to come from. It was right enough, however, to go and see what could be done.

The president said the only way to get the money was to make the trial.

The secretary read the resignation of Mr. Henry C. Hallowell, vice-president for Montgomery county, with a letter suggesting Mr. Alban Gilpin as his successor. The resignation was accepted, and the latter was elected.

Captain Snow read an article from the *American Farmer*, and several letters from Col. Wilkins, Mr. Massey and others, suggesting the holding of an exhibition of peaches during August.

The president said that several packers had been to see him on the subject. The Packers' Association met last Tuesday, and he supposed the question was then discussed by them.

Mr. Shriver said the packers were much interested, and he had no doubt something would be done with their co-operation.

After the matter had been discussed by Mr. R. W. L. Rasin, Mr. Grove, Mr. Brackenridge, Captain Snow, Mr. Feast and others, Mr. Rasin offered a resolution that the society have an exhibition of peaches in August next, provided they can obtain the proper aid from parties interested. The resolution was adopted.

The President then announced that the subject for the evening's consideration was "Pears."

Mr. Jesse Marden, Jr., delivered a very able and interesting address on the subject of pear culture. He had never had any blight. He recommended thorough drainage and subsoiling to prevent blight. The ground for dwarfs should be as rich as for a garden crop. Fresh manure or ammonia should be avoided. He recommended lime, potash and bone phosphate as the proper fertilizers for pears.

Captain Snow, of Harford, endorsed the views of Mr. Marden, and gave his opinions at length on the subject, which were very interesting.

Captain Snow's paper was characterized by a number of gentlemen present as being very able, and exhaustive of the subject. It is with great pleasure we lay a portion of it before our readers, the late date at which it came into our hands forbidding our giving it entire. Its conclusion will be given in our next issue.

Mr. Brackenridge said he did not think that there were two varieties of the Sickle, but the differences in size and color depend upon the manure and culture. This view is endorsed by Mr. James Pentland.

Captain Snow said that he thought that the cracking in the fruit was caused by an excess of sap thrown up after a rain preceded by a drought, and thought blight was from atmospheric causes and not from culture or manure.

The subject for consideration at the next meeting will be "Roses," with Mr. Pentland to open.

Potomac Fruit-Growers' Association.

Messrs Editors American Farmer:

To-day was our annual meeting. After the election of officers and other routine business, a member asked "What are the most desirable varieties of apples for this region?"

In reply, another member said if he was about to plant, say 100 trees, 90 of them would be Winesap and a few of them Tewkesbury Blush. Among other good varieties were mentioned Roman Stem, Smith's Cider, Catlin, Shockley, Ben Davis, and, for a fall apple, the Smokehouse. Of this latter a lady remarked, that if she wanted to plant one tree, it would be a Smokehouse; if two, they would be the Smokehouse; if three, the Smokehouse.

A member had received a letter making the inquiry if it would be advisable for the party to come to Washington and invest in a fruit farm; were the peach trees free from the yellows and worms?

It was remarked in reply that the yellows were unknown here; that the trees were uniformly healthy, fruit fine, abundant, and that a failure rarely occurs.

A member stated that 100,000 trees had been planted in this vicinity within a very few years.

The Concord was *the* grape, and for a second variety the Delaware was named.

Apples were a sure crop. A member stated that an orchard of 1,000 Winesap trees in ten years would be worth $10,000.

An inquiry was made if our worn-out lands could be profitably planted to orchards?

It was answered that deeper tillage and a slight fertilizing would make such lands very valuable for orchards.

The President announced, as a theme of discussion for the February meeting, "The Quince."

Washington, D. C., January 5, 1875. G. F N.

The Pennsylvania Fruit-Growers' Society.

The annual meeting of this association, which will hereafter assume the name of The General Horticultural Society of Pennsylvania, that its name may accord with the widened scope of its operations as now including every branch

of horticulture, was held at York, on the 20th and 21st. ultimo. The attendance was not as large as usual, but the proceedings were interesting and in our next we will give a report of them, made by the editor of the *Farmer*, who was present.

Among the well-known horticulturists at the meeting were Mr. Thomas Meehan, the editor of the *Gardener's Monthly*, a gentleman whose knowledge is not more notable for its encyclopedian character than for its ready availability and the brilliancy with which he uses his intellectual weapons; Mr. Josiah Hoopes, an eminent author on Evergreens, and possessing as a public speaker, a style forcible, persuasive and polished; Mr. J. B. Jones, representing the useful Western N. Y. Horticultural Society; Mr. Gruver, from the equally useful Ohio Society; Mr. J. I. Carter, the intelligent superintendent of the Eastern Penn. Experimental Farm, and others.

The President for the year was Prof. S. B. Heiges, of York, who left nothing undone to make the meeting a success. For the ensuing year, Mr. Edward Satterthwaite, a prominent fruit-grower and nurseryman of Montgomery co., Pa., was elected President, and Doylestown selected for the place of meeting.

Pear Culture.

BY CAPTAIN CHARLES H. SNOW.

Read before the Maryland Horticultural Society.

If any one will take the trouble to look over the different agricultural and horticultural magazines for the last twenty-five years, and note the immense quantity of pears offered for sale, (Standard and Dwarf) they would be led to suppose that by this time good pears had become cheap and common. But what are the facts? Except for a short season, when the Seckle, Bartlett and Duchesse are in season, good pears are not to be obtained in quantity, even in districts where the climate is supposed to be congenial and the culture best understood.

Again, if we glance over the minutes of the meetings of the different horticultural societies during the same time, it will be seen that no single subject has occupied so much time, and been more thoroughly discussed, than the culture of the pear. Dwarf or Standard, clean culture or the reverse, high manuring or more moderate, close pruning or free growth, and last, though not least, what is "Pear Blight?"—have each had their advocates, and enough articles been written on the pear to form quite a library of itself, and so different have been the views of able pomologists on the subject that any one who has cultivated a few pear trees may give his opinion on the subject without having any fears that what he may advance will be considered either unscientific or foreign to the subject. On this, (as on all other subjects where able men and experts disagree,) no doubt much can be said on both sides, and free discussion is the only means of arriving at the truth. One of the bad results, however, of all this divergence of opinion is, that the novice is so bewildered that he hardly knows what to do or what kinds to plant.

Some years ago, when I first took the disease, I read everything I could find on the pear, and after trying to follow all the guides, I came to the conclusion that either pear culture was not well understood or else the pear was a very capricious and whimsical fruit, and later observations have confirmed me in the last opinion. Nor do I think that this is confined to our country. I have repeatedly visited all those parts of Europe where the pear is extensively cultivated, and if the retail price is any indication of the market, either the pear is not a perfect success or I was always cheated in my purchases. The comparative price between articles in Europe must be considered in relation to the price of labor. I do not ever remember paying less than a half franc or three for a franc for Duchesse in their season; and I have seen Chaumontel and other fine winter pears, bring as high as a franc and a-half at Christmas, and this where I could get any number of laborers for two francs a day and they find themselves. Of the great care that is taken with this fine fruit in France I will speak later. With these preliminary remarks, I will give my own views on the subject:

The site chosen for a pear orchard, either Standard or Dwarf, had better be protected from the west and northwest winds. The great length of the fruit stem in most varieties of pears, and their great weight, render them very liable to be blown off by the sudden storms that come upon us in the summer. I have seen in an hour half the pears taken from an exposed lot of my own, whilst another lot, containing four times the quantity of trees, lost very few. One is on the top of a hill, the other on a flat at the bottom.

Any sound soil that will bring ten barrels of corn to the acre will grow Standard pears well. I prefer a gravelly loam. For Dwarfs the soil should be much stiffer and moister, to meet the requirements of the quince stock on which it is grafted; another reason is that the Dwarfs are not so apt to blow over in a stiff soil as in a light. I remember to have seen a large number of Dwarf trees blown partly over by a storm, and they had to be supported after by strong stakes. They were, however, on a very sandy soil. In preparing land for fruit of any kind, in most cases the whole is done too quickly and superficially. With my present experience, did I wish to set out an orchard of any kind of fruit, I would like to have it well in clover, and about the middle of July, or earlier farther South, I would turn it all under with a two-horse plough, and let it lay until I was ready to plant my trees in October. I would then harrow down and cross plough with the largest three-horse plough that I could get, following the plough with a large subsoil plough, then harrow down and plant; if Dwarf, 12 feet; half Standards, 16 to 18; and full Standards, 20 to 25 apart, according to varieties. Now, as to the comparative merit of Dwarfs and Standards, much may be said on both sides. The Dwarf bears earlier, and the fruit is not so liable to be blown off, and I do not find it more subject to disease than the Standard. From the smallness of its roots, it cannot go so far in search of its food, and requires a richer soil, and it is claimed that the fruit is finer. This latter may be owing to the ease with which the fruit can be thinned. In case of loss by

blight, you do not seem to feel it so much as with a Standard. *Per contra.*—The Dwarf requires much nicer cultivation—not many varieties do well on the quince, and if allowed to overcrop itself will sometimes not bear for several years. Though the pear on its own root is quite a long-lived tree, I am not yet convinced that the Dwarf pear is a very short-lived one. If kinds are planted which experience has shown as suitable for the quince, and the trees are on proper soil and well cared for, I think they will outlive two consecutive peach orchards. I have been shown trees in Normandy that I was assured were over forty years old, and many in Massachusetts over twenty-five, and still vigorous; and as they were in rows, it is not reasonable to suppose that they had all rooted from the pear stock, a thing which sometimes happens. I would here like to remark that my experience is, that those varieties of the pear which make the best connection with the quince, seldom, if ever, root from the pear when on that stock. With regard to Standards, although longer coming into bearing, they are surer than the Dwarfs after they commence, and I do not think they require near as much labor. They require very little pruning, whilst the Dwarf should be cut in some every year. The Standards do not require as rich a soil or as constant manuring, though, like all other fruit trees, are always benefited by an annual top-dressing. After Standards are say eight or ten years old, I would put the orchard in some kind of grass, but never allowing any to be taken off. More fruit orchards are hurt by cropping than any other way after they come into bearing, though I think a crop of vegetables can always be raised in young orchards, advantageously to the trees and pocket. The rows of vegetables should be put in differently each year, so as to work each way. This is supposing that you manure well for your vegetables, and have a careful hand to work them. After the trees come into bearing, I have always thought that the best crop that can be raised on any orchard is fruit, and the man that tries to get two crops will very often get none. Except the blight, or fire-blight, as it is sometimes called, the pear is a remarkably healthy tree. With regard to this very common and fatal plague to pear-growers, I can say that I have not had much trouble. I have lost in ten years probably 40 trees out of 1,200. As to the cause, nature, and cure of the blight, much has been written, and I think that it is easier to tell what it is not than what it is. That it is not confined to cultivated fruit is evident. I last summer saw some thrifty seedling trees, twenty feet high, growing in a fence-row, blighted down more than half way, whilst a couple of rows of Dwarfs and Standards, within a few yards, were unhurt. Every nurseryman knows that so difficult is it to raise young pear stocks that they are mostly imported from France. With me the bulk of my losses have been in one end of an orchard, in which the situation and soil are perfectly similar to the rest. That some varieties are more subject to it than others is unquestionable. Glout Morceau has been entirely abandoned on this account, and the Vicar of Winkfield and St. Michel Archange are almost as bad. My own opinion is, that, like many of the diseases that afflict men and animals, it is in the air, and probably cryptogamous in its nature. I have never found any preventive. The only thing that can be done is to cut off the diseased part. Care should be taken to cut off enough, as the virus may extend six inches or a foot below where it makes its appearance outwardly. I have taken the black diseased sap and inoculated a healthy tree. In less than a day it has commenced to show a black spot on the healthy tree. I have noticed it worse when we have a spell of wet, close days in June. Just such days as will rust the wheat. I think that it is more liable to take trees of a strong succulent growth, and I do not think that trees after they get large enough to bear are as liable to blight as when they were growing fast. I judge that the fruiting stops the sappy growth. I have seen, however, trees so old that they were scarcely making growth blighted badly. I can only advise to plant those varieties that have been shown to be the least predisposed to blight, and when one dies plant two more. I am also of the opinion that future investigations will establish the fact, that varieties of American origin will be found less liable to this disease than imported varieties. If this should be so, with such fine native kinds as Seckle, Howell, Sheldon, Lawrence, Clapp's Favorite, Osband's Summer, Tyson, Dix, and many others, we would have little to regret. From all the information that I can get, the blight has not affected the trees in California. That State has a remarkably dry climate, and should they not be plagued with this disease, it would tend to show that moisture has something to do with it. I also notice that all writers who have made the pear a study, advise those planting to avoid rich alluvial damp land.

With regard to the kinds to plant, the experience of any grower or reliable nurseryman in your vicinity is worth more than volumes written by others in distant localities. Nor does the experience of *one person or one year* justify you in planting largely of any new variety. Some years ago I bought a couple of Napoleon, a pear that in France stands No. 1. The first time it bore with me the fruit was so very superior that I purchased every tree that could be found in this locality. From that first bearing I have had nothing but failure in the quality of the fruit, and my intention is to work some other varieties on them. Seeing that Soldat Laboureur was highly recommended by Field in his work on pear culture, I purchased twenty-five trees. They made the handsomest growth I ever saw, bore quantities of fruit, but I never ate a good one yet. It always rotted at the core before it ripened, no matter whether I let them ripen on the tree or pulled them when they were as green as grass. I might go on and mention fifty more varieties that have disappointed me.

[CONCLUSION NEXT MONTH.]

Massachusetts Horticultural Society.

By the courtesy of Mr. E. W. Buswell, corresponding secretary, we have the schedule of prizes of this Society for 1875. The total amount appropriated is $6,400, divided as follows:—For Plants and Flowers, $2,800; Fruits, $2,100; Vegetables, $1,200; Gardens, Greenhouses, &c., $300.

Floriculture, &c.—February, 1875.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore county, Md.

Botanical and floricultural taste in Europe, as well as in the United States, has of late years undergone a very decided change in regard to the kinds of plants which claim the attention of the votaries of Flora. In time not long past, collections both public and private consisted to a great extent of simple plants of choice species, or varieties of the same; but which were in most cases ill adapted to the decoration of the flower garden, the latter being then adorned by groups of Dahlias, Verbenas, Petunias, &c., and the more robust and showy kinds of hardy annuals; while now, both greenhouse and parterre glow with belts and groups of flowers of all hues of color, and variegated foliage plants of harlequinic presence; and at the rate those ornamental beauties have been multiplied of late years, should it continue, the future of Flora's kingdom is puzzling to contemplate. However much the glare of flowers or foliage may attract the fancy in the adorning and beautifiying of the parterre, by the blending and contrasting of colors, yet still, in most of such arrangements we have seen, there was an air of stiffness or formality pervading the whole, and to neutralize or relieve this sameness of character, we would recommend the free introduction of grasses and ferns, as objects ever pleasing to the eye, from their lively green and graceful habit of growth.

According to a promise made last month, we proceed to offer a few desultory remarks on some *Filices* or Ferns, which, botanically speaking, belong to that CLASS denominated *Cryptogamia*, or flowerless plants, and in it, presenting the highest state of development, justly stand at the head. Their rootstocks or stems are either tufted, creeping or ascending in the form of a tree, and in either case are surmounted by fronds, which in a young state are rolled up, but unfurl gradually as they advance in growth, and are either simple, lobed, pinnatifid, or once to four times pinnate, and sometimes deeply dissected; the footstalk of the frond is usually termed the stipe, and this when it passes into the frond and becomes bordered by the leafy portion, becomes what is called the rachis or mid-rib. The fructification or reproductive organs, which authors call Thecæ, others Sori, are situated on the back of the frond, sometimes near its margin, arising from a vein or conjunction of two or more veinlets, and arranged in a dotted, linear or scattered manner, and is either naked as in Polypodium and Gymnogramma, or covered by a round or lengthened membranaceous substance called indusium, as in Aspidium, Nephrolepis and Asplenium, and in some instances this membrane is supplied by the slightly altered margin of the frond, as in Pteris and Adiantum, and is forced open by the growth of the sporangia or spore cases. In olden times the generic characters of ferns was derived from the position of the sori, whether naked or indusiate, linear, dotted or in scattered masses; but of late, through the investigations and publications of Dr. Presl, of Germany, and Mr. John Smith, of Kew, England, a new and more natural arrangement has been effected, by taking into consideration the mode of venation, whether free or netted, in conjunction with the form and position of the sori. The adoption of this combined system has no doubt set up a great many new genera, as for example in the old genus Polypodium, has arisen Goniophlebium, Camplyoneurum, &c., &c. Witness also in Asplenium as its descendants, Neotopteris, Hemidictyum and Oxygonum, &c. And it may be proper just here to caution careless observers, that the indusium, through age, or by handling, may disappear, not to confound species of indusiate genera, as Lastrea and Aspidium, with that of Polypodium, the sori of which are naked; or that of Alsophila with Cyathea from the same cause, the latter being furnished with a cup-shaped involucre.

We now begin to commend certain ferns as attractive objects for purposes of decoration, which their beautiful green, elegant habit and delicately divided fronds, together with the little care required in the cultivation of the majority of species that have been introduced into our gardens, entitle them to.

Foremost in rank, for the garnishing of recesses in the conservatory or giving style to a fernery or hanging basket, are the many species of Adiantum, not one of which but possesses some peculiar and attractive charm to insure its adoption. Many of them, in their native habits, attain to a height of three to four feet—as A. trapeziforme, betulinum, triangulatum and macrophyllum; but the species best calculated to give satisfaction to the many, are A. tenerum, Aethiopicum, and cuneatum; these are easily grown, and admit of being often divided.

Davallia is another popular genus, and embraces the D. Canariensis or Hare's-foot fern, a plant known to every intelligent gardener. To this, as a fit mate, is D. pixidata, both having prostrate rootstocks, covered with long, chaffy, brown scales, which cling to rocks and trunks of trees, from which proceed a few deeply divided fronds, from twelve to twenty inches in length. Besides these there are fifteen to twenty species, all of which are worthy of a place in any collection.

Pteris is a genus very rich in species, and, as a general thing, they are robust in their nature, and readily reproduce themselves from spores, under favorable circumstances; the consistency of the fronds are in most instances rigid, therefore do not possess that plumose or pliant habit which so much enhances the value of many of its compeers as fit subjects for decorative purposes. The pet ferns of some collections are the Gymnogrammas, particularly those whose fronds bear a white or yellow powder on the under surface. We admire these also, where they can be kept by themselves and properly attended to, but if mixed up with other plants, that require to be syringed overhead, they become sick and unsightly. The powdered kinds require a dry and warm atmosphere; the G. calomelanos, sulphurea, and triangulare, are the most desirable. All the green varieties will succeed in a mixed collection. Of Polypodium and other genera that have sprung from it we have a vast assemblage, presenting many forms of fronds, a con-

siderable number of which are of a leathery consistency, and all are more or less provided with a creeping rootstock; the habits of several are nevertheless imposing, if not graceful, as in Pleopeltis aurea, and Goniopteris fraxinifolium. In Polypodium itself, Presl includes all the species of Adiophorus of Gaudichaud; these are natives of the Sandwich Islands, and have their habitats on the trunks of trees, where they grow in tufts; all are neat in habit, their fronds deeply divided, and of a lively green color when young, and are therefore very desirable to have for a fern or Wardian case. As a general thing, the leathery-leaved kinds enclosed in this group are not readily reproduced by spores, but being free growers, are readily propagated by divisions of the rootstock.

In Aspidium, the indusium is round, and most all of the species are strong growers, and producing somewhat harsh fronds, which are from once to thrice pinnate, and a majority of them may be said to possess a common appearance, as no person penetrating a damp woods but will meet with some one or other of the kinds. Nearly akin to the foregoing, and with an indusium of the same form, is the genus Polystichum; then following close on this are Nephrodium and Nephrolepis, both having kidney-shaped indusiæ; but taking them as a whole, their fronds are more delicately divided, and are therefore better adapted to adorn the conservatory.

Claiming a strong affinity with Aspidium, and withal one of the most interesting ferns we know, is the Didymochlæna sinuosa, a native of Brazil and the Fiji Islands, where it assumes the form of a small tree, having a stout trunk from one to three feet high, which is crowned by a noble head of erect bipinnate fronds; the pinnules are deciduous, and drop off at mature age, at their junction with the rachis, and like many species of Adiantum, appear as if nearly one-half had been cut off, which character botanists term dimediate.

The old genus Asplenium, has, by taking into account the various direction of the veins and venules, in conjunction with whether the indusium is single or in a double line. has given existence to a vast number of genera, as witness first: Darea, Hemidictyum, Anisogonium, Digrammaria, Oxygonium, Neotopteris and Camptosurus, which latter embraces only one species, viz: our native A. rizophyllum, or as it is sometimes called "Walking leaf," from the fact that the frond takes root at the point from which a plant proceeds; this sends its fronds forward again, creeping along rather than walking.

TO BE CONTINUED IN OUR NEXT.

Greenhouse Plants from Seed.

Messrs. Editors American Farmer:

Few persons are aware of the ease and rapidity with which many of the rare and beautiful perennial plants which adorn our greenhouses and sitting-rooms in winter, and our gardens in summer, can be grown from the seed. They are generally propagated by cuttings of top or root, and few amateurs ever think of sowing seeds of them. If one wants a certain variety of Geranium, Fuchsia, Dahlia or other like plant, the only way to propagate it is by cuttings or divisions of the original, but if a person is really fond of flowers there is no pleasure equal to that of watching the development of seedling perennials. Many persons have been deterred from attempting to grow these plants from seeds by reading the directions therefor given in most horticultural books. Most writers on gardening will tell you that it takes seedlings of greenhouse plants from two to six years to bloom, and few amateurs have patience enough to watch so long. But the fact is that there are but few plants usually grown as bedding plants but will bloom within a year from the seed-sowing. Verbenas are now quite commonly grown from seed, and if the seed is of a good strain, and the sowing is made in boxes in February or March, the plants will make as good a show out doors as those grown from cuttings. Of course there will be no certainty as to the colors of the flowers, and when beds of a color are wanted they must be grown from cuttings.

Geraniums of the scarlet nosegay and zonal classes, if sown early and grown rapidly, will bloom freely in the garden by midsummer. The writer grows thousands of seedlings annually, and the seedling beds always present a finer show in autumn than the bedded-out plants, though of course there is hardly one plant in a thousand worth preserving, as the flowers though bright are generally inferior to those we already have. A few superior sorts are found, however, annually, and the pleasure in watching for the appearance of a good flower is one of the principal incentives to perseverance.

Dahlias are seldom grown from seed by most persons, but just why we cannot say, for seed of a good strain will produce a much larger proportion of good flowers than either verbenas or geraniums. In our experience we can count on 40 per cent. of good double flowers, well worth growing, though but few of them will be any finer than sorts we already have. Indeed it would seem hard to get the Dahlia any nearer perfection. Dahlia seed vegetates readily, and, if sown in boxes about the time for starting tomatoes, potted off and grown rapidly, the seedlings will bloom quite as early as the divisions of last year's tubers. In fact we never in all our experience knew a Dahlia seedling to fail to bloom the first season, with the treatment ordinarily given to tomato plants. The Fuchsia is a much more difficult plant for the amateur to grow from seed. The seeds are very small and vegetate slowly, but when once up grow very rapidly. Fuchsia seed sown in October, and brought forward in a warm greenhouse, will usually bloom the following June. We would not, however, advise the amateur to try the Fuchsia until he has fully mastered the art of growing delicate seed.

The rose is much more easily grown from seed than most persons suppose. The usual plan in the books is to sow the seed in autumn and allow the frost to have full play at them during winter. They will then sprout in Spring, or perhaps not till the second spring, and will show flowers in two to six years. Now our practice is different. We sow the seed in November in boxes placed in a strong bottom heat in the greenhouse. The bulk of the seeds will usually

be strong enough to pot off in March or April, and most of the ever-blooming sorts will show flowers that summer. Some years ago we sowed some rose seed in the above manner about the last of October; one day in the following March on entering the house we were astonished to see a magnificent double crimson rose in the seed-box on a plant not over four inches high. This plant was potted off and continued to make buds all summer, after planting out in the open ground. That rose would have been heard from, but some flower thief stole the plant before any had been propagated. It is easy enough to grow seedling roses, but let not the amateur flatter himself that he is going to get good flowers, for by far the greater part of the seedlings will be single. An acre of roses may not give you a flower worth saving, but to an enthusiast one superior new rose is pay enough for a season's trouble.

There are many other perennials which bloom the first season well worth growing from seed. Cinerarias, Calceolarias and Chinese Primroses, of course we grow from seed, as the seedlings are much better than any plants we could keep over. The double Chinese Primrose is propagated from cuttings and layers, as, with the best attention to hybridizing, there is small chance of being able to get double-flowered seedlings. The writer for years bought the best seed to be had in Europe, of Double Primula, but never raised a good double flower. A few years ago a few pots of large fimbricated Primulas were left sitting on a rich border in one of our greenhouses with the intention of ripening the seed, but were neglected until the seed had fallen. The seedlings soon appeared all around the pots and were taken care of and potted when large enough, soon making fine plants. The following winter they all bloomed, and almost without exception produced *double* flowers. This result I attribute to the fact that the plants from which the seeds fell were in a somewhat enfeebled condition from being badly pot-bound, having been flowered in the same pots in which they had been growing during all the previous year. In saving greenhouse seed of any kind we always find our efforts more successful when the roots of the plants are restricted, and the soil in the pot not over rich. With some plants which readily throw off the *double* habit, such a course is indispensable.

Nothing in all the round of horticultural pursuits is so attractive to a true lover of nature as the production of new forms and varieties of plants by seed, and nothing so illustrates the power of mind over inanimate nature as the results flowing from the skill of the hybridizer. Great as have been the results in this direction, still greater conquests are yet in store for the diligent student in nature's grand laboratory.

W. F. MASSEY.

Riverbank, Chestertown, Md.

Seed Sowing, and Chinese Primroses.

BY JANE BOSWELL MOORE.

Nothing is more common than for persons who have bought flower seeds or plants to complain that the seeds did not come up, or the plants flourish. I suppose every florist must often hear the cry so often repeated by lady friends: "those seeds could not have been good, none of mine came up," or "those plants looked healthy, but they could not have been, for they never bloomed, and soon died." In my experience as an amateur, I have sometimes had over four hundred varieties of flower seeds for trial, and I can safely affirm that in every case in which I got my seed from a reliable florist, and it failed to come up, the fault was my own. I do not remember any exceptions, and, in not a few cases, every seed in a package grew finely. If, however, one sows a seed of microscopic fineness as deeply as a Ricinus bean or a sweet pea should be, where shall we look for it, or, if the soil be moist, the place cold, and the sun never on it, what can the seed do but perish? I have had seeds of cypress vines which were about six weeks coming up; some three days, and others that never grew at all. Those that came up in three days, had previously been soaked in hot water until the seeds burst and the embryo leaves appeared. They were then transferred from the cup of warm water to one of Perine's excellent shallow seed-pans, which was filled with fine woods earth which was lighty laid over it. The seed-pan was then put with rows of others on a sunny window sill in spring, and kept moist. I had about forty of these vines trained on invisible strings from different parts of the garden to the brown house. Their foliage was abundant and exquisite, and they were literally starred with pure white, scarlet, and beautiful rose-colored blossoms. Their airy graceful pendant appearance, against the solid brown structure, made them much admired.

But it sometimes happens that very little judgment is shown in the selection of suitable blooming plants. Many beautiful flowers bloom but once, and he who chooses the so-called perpetual roses, will find that his more intelligent neighbor who preferred monthlies has come much nearer than himself to constant bloomers. Especially in winter months, is it desirable to have some plant that, while hardy and easily grown, shall seldom or never be without a flower. For these qualities, the Chinese Primroses are now daily growing more and more popular. Some of the single varieties are very handsome, but by far the finest of the coveted double white Primroses, is the variety known as Mrs. John Saul, raised by the Washington florist of that name. The flowers are large, pure white, petals overlapping, beautifully serrated, of fine form, robust and compact habit, and abundant bloomers.

During a few minutes absence from the sitting room, my infant son stripped my plant, not a large one, of twenty-four blossoms. In a few days three more whorls of buds shot up, and these will soon develop into thirty fresh blossoms. From November to April, a single primrose, well cared for, not unfrequently bears *five hundred flowers*. I have a number of varieties of single and double, all doing well; most of them were sent me by mail, a distance of hundreds of miles, in cold weather, looking perfectly fresh when unpacked.

The flower-pots should be well drained, and the plants, though often watered, never very wet. If very fine blossoms are desired do not keep the plant very warm. Some I have seen

in stores and greenhouses where the temperature was hot and dry, had a "spindling" look, and the leaves were yellow and shrivelled. The leaf of a primrose in good coudition is very beautiful. The double red is not so desirable as the white, as it blooms more sparingly.

Unhealthy Plants—The Remedy.

Mr. Peter Henderson, a great authority on all floricultural subjects, gives the following suggestions on this topic in the *Agriculturist:*

Whenever plants begin to drop their leaves, it is certain that their health has been injured, either by over-potting, over-watering, over-heating, by too much cold, or by applying such stimulants as guano, or by some other means having destroyed the fine rootlets by which the plant feeds, and induced disease that may lead to death. The case is not usually important enough to call in a "plant doctor," so the amateur begins to treat the patient, and the practice is in all probability not unlike that of many of our household physicians who apply a remedy that increases the disease. Having already destroyed the, so to speak, nutritive organs of the plant, the stomach is gorged with food by applying water, or with medicine, by applying guano or some patent "plant food." Now, the remedy is nearly akin to what is a good one when the animal digestion is deranged—give it no more food until it reacts. We must, then, if the roots of the plant have been injured from any of the above-named causes, let the soil in which it is potted become nearly dry; then remove the plant from the pot, take the ball of soil in which the roots have been enveloped, and crush it between the hands just enough to allow all the sour outer crust of the ball of earth to be shaken off; then repot in rather dry soil, (composed of any fresh soil mixed with equal bulk of leaf-mold or street-sweepings,) using a new flower-pot, or having thoroughly washed the old one, so that the moisture can freely evaporate through the pores. Be careful not to over-feed the sick plant. Let the pot be only large enough to admit of not more than an inch of soil between the pot and ball of roots. After repotting, give it water enough to settle the soil, and do not apply any more until the plant has begun to grow, unless indeed the atmosphere is so dry that the moisture has entirely evaporated from the soil, then, of course, water must be given, or the patient may die from the opposite cause—starvation. The danger to be avoided is in all probability that which brought on the sickness, namely: saturation of the soil by too much water. Other causes may induce sickness to plants, such as an escape of gas in the apartment, or smoke from a flue in the greenhouse; but in all cases, when the leaves fall from a plant, withhold water, and if there is reason to believe that the soil has been poisoned by gas, or soddened with moisture, shake it from the roots as before advised, and repot in a fresh flower-pot. Many years ago, when I used smoke-flues in my greenhouses, some kindling wood, carelessly thrown on the top of one of them, ignited, and the smoke caused the leaves of every plant to drop. There were some 3,000 plants, mostly tea-roses, in the greenhouse; it would have been too much of a job to repot all, but by withholding water for some ten days, until they started a new growth again, very few plants were injured.

The Vegetable Garden.

Work for February.

So far as the season will allow, prepare for the work that is ahead. Provision for manure supplies should be made, poles for beans and brush for peas gotten together, and when practicable the ground either dug up or plowed. Materials for hot-beds should be gathered together. See an article below on this subject. Tools ought also to be put in order. Where there is no hot-bed, a few boxes filled with rich mellow earth and put in a sunny window will provide enough early plants for a small garden, but in every farmer's garden there ought to be a hot-bed.

Hot-Beds.

Mr. J. B. Root, an experienced market gardener and seed grower of Rockford, Ills., has published a "Garden Manual and Seed Catalogue" which contains a great deal of useful and practical matter compacted in small space. From it we give his plan of making hot-beds.

Frames and Covers.—The first step is to provide ourselves with frame covers. I have finally settled upon the use of frames twelve feet long and five and a half feet wide. This allows of the use on each bed of four sash three feet wide. Sash 5½ feet long are as large as are convenient, and permit the use on the same frame of the cloth covers hereafter described. Beds of more than four sash are difficult to keep of an even temperature, and a two foot alley-way is needed as frequent as every twelve feet. These frames we make of inch boards, using 2x4 scantling in the corners for strength. The bottom or lower side is made 12 or 15 inches high, the back or upper side 18 to 20 inches high. The cross-bars for the sash to slide on are made of 3x2 stuff, so as to bear a man's weight if necessary.

For use on early beds we use glass mostly, but for the large number of our beds in use after hard freezing is over and we have to protect only against spring frosts, we use cotton cloth or coarse sheeting. Two widths are sewn together, cut twelve feet and six inches long, and the edges hemmed, and small brass curtain rings sewed on stoutly at fifteen inches apart around the border. By hooking these over small nails, or inverted hooks, the cover is stretched nearly air-tight over the whole bed. When it is desired to open the bed they can be unhooked and rolled down as far as desired, and fastened, or rolled entirely off upon a clean board at the foot of the bed.

For sprouting Sweet Potatoes, for hardening plants, and for all uses after the 20th of April, I have used simply cotton sheeting, but for earlier use and to render the cloth air-tight and warmer, use the following preparation: 1 quart raw linseed oil, 1 oz. pulverized sugar of lead, and 2 oz.

pulverized rosin. Heat in an iron kettle till all is dissolved, and apply with a brush, while hot, to the muslin while stretched over a frame. Endeavor to apply when two successive clear days can be had to dry it well before placing it over the vapor and heat of a bed.

Ready for use, these cost in money $1.25, and in labor enough to make the entire cost nearly equal the *interest* on glass for one year. In careful hands they will serve three seasons. They do not gather heat so rapidly during the day as glass, and hence there is less danger of burning or drawing plants; nor do they throw off heat so fast at night, and so need less covering. Fitting tight to the frames they admit of no drafts, undergo no sudden changes, and suffer little from dampening off. Old gardeners are usually prejudiced against them at first thought, but I notice after once trying them they annually increase their number, finding them a cheap way of increasing their beds, causing no breakage like glass in careless hands, and are stored at less expense, and answer many other uses during the year.

Our sashes are made with heavy frames and rails, as the steam and heat beneath and cold and sun above will warp them if made light. The glass is all bedded in putty and each pane laps one-quarter inch on the one beneath it, and gutters must always be cut at the foot of each row of panes, so that water shall not stand to freeze and heave the glass.

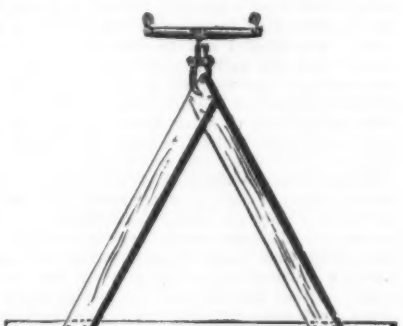
Making the Beds.—Other materials than horse manure are sometimes recommended for heating beds, particularly tan bark and spent Hops, but the former has a heat so mild and slow, and the latter one so intense and quick, that they had best never be used except in connection with stable manure, which is always the chief reliance. As gathered from town stables, if it be scarce, it can be profitably increased by adding one-half its bulk of leaves or unrotted litter, or one-fourth its bulk of fresh tan bark. These additions prevent too intense heat and maintain the desired temperature a longer time. If spent hops from the brewery be added, a like amount of tan bark or litter should be used to reduce its intense heat. Fresh horse manure is most desirable, but when scarce we have always used a portion of older or frozen manure, provided it had never heated, but this, if used, should always be mixed with such as is perfectly fresh. As fast as drawn all should be mixed together in a conical pile until it begins to heat, when it should be forked over into a similar shape, working into the center all the coarser and frozen parts. At every forking over a moderate sprinkling should be given each layer of a foot or more, to be considerably increased if any parts are found to be dry or fire-fanged. When heat rises a second time it is ready to be made into a bed.

When only one or two beds are to be made, and for earliest use in February, a pit, if well drained, is most economical of heat. These are made one foot larger each way than the frame to be used, and are as deep as manure is to be piled—for early use about three feet. But for our larger and later use we make beds on the surface of the ground having only enough slope to secure drainage, and leaving only two-foot paths between the beds. First a six-inch layer of cold manure or litter is spread upon the ground and sprinkled, and then successive layers of hot manure of same thickness until of the desired depth, giving to each layer a good sprinkling and tramping down. My experience is that if every third or fourth layer is of fresh manure unheated, the bed retains heat longer. For our earliest beds in February, we usually make the manure fully three feet deep, and gradually lessen the depth until the beds, in April, for Sweet Potatoes and other plants, are only from 12 to 15 inches deep. When within a few inches of the required depth the frame is placed on the manure, and one layer piled within and without the frame. The sash, or covers, are then put on and kept closed until the heat rises, usually two to three days, when air is given. The first heat is usually too high for any seeds to endure, 100° or more, and the bed must not be used until it recedes to 90° or less, and the rank vapors have passed off, usually a couple of days more.

If heat does not rise in the piles, or in the bed, or any particular part of the bed, because of frozen lumps or other reasons, a few pails of boiling hot water will help to start it. If any portion or all the bed be too hot, the temperature can be lowered by punching holes with a crow-bar or stick, in different parts of the bed, and leaving them open a day or two. A considerable revival of heat can be induced in old beds by removing the old manure from the edges and renewing with that which is fresh and hot.

"A Planker."

Mr. Root, in his "Garden Manual," noticed above, gives the following description of what he says is a very useful tool. In an article in the *American Agriculturist* he describes the same implement with an illustration, which we copy.



On any clean garden soil, and especially our prairie soils, the hand-rake can be largely dispensed with by the use of a simple home-made tool, which, for want of a better name, we will call a "planker." It is made of two pieces of

heavy plank, 8 or 10 feet long, nailed together side by side with cleats placed at angle of 45 degrees, so as to meet in front of the centre. After being stoutly nailed at their crossing, a hole is made for the clevis by which the horse is attached. The line of draft raises the front of it enough for it to slide upon the lumps, and the weight of the driver, with the rolling motion given them, combine to crush them nicely. If not fine enough, harrow and plank again until it is as smooth as a floor. We use a hand-rake only for occasional spots, where trash or coarse manure have clogged the planker. A gardener, to whom I described it several years ago, wrote me recently: "Your planker grows better every year till I keep a hand-rake and roller only because they are on the place already." It is also excellent in fitting any farm land for crops, especially for corn.

Aquaculture.

Construction of Trout Ponds.

By ALEX. KENT, Green Spring Fish Ponds, Green Spring Station, Baltimore county, Md.

The construction of ponds is the first matter claiming the attention of the farmer who proposes to engage in trout-growing. It is not only first in point of time, it is first also in importance,—for on the manner in which this work is done, will depend very largely the success of the undertaking.

This will readily be seen if we consider the principal dangers and enemies against which the trout-grower, everywhere, must guard.

1. He must guard against *floods*.
2. Against *surface drainage*.
3. Against *excessive temperature*.
4. Against breakage of dams.
5. Against living enemies.

1. *Floods.*—If small ponds are subject to overflow, there is of course no encouragement to stock them, for fish instinctively avail themselves of all opportunity to escape from such close confinement, and will not return to their old quarters. If ponds are large, abounding in natural food and in hiding places, they show no disposition to leave them, but rather take advantage of unusual freshets to work their way into them.

If the water supply is to be taken from a stream, the pond should be made aside from the stream and above high water mark. A race or aqueduct should then tap the stream at a point sufficiently high to allow a free and rapid flow into the pond. The inlet should admit only the ordinary flow of the stream. Should the water supply be taken from a spring, situated on ground liable to overflow, it must be led to a point far enough away to secure exemption from this danger, or else a dam of sufficient strength and solidity be thrown around both spring and ponds. Whatever means may be adopted, there should be no shadow of doubt as to their sufficiency, for loss from this cause is likely to be total.

2. *Surface Drainage.*—This relates to the quality of the water, not its volume. So many deleterious elements enter into the compositions now used to enrich the soil, that surface drainage into fish ponds cannot safely be allowed.

This should be intercepted by a ditch of sufficient capacity and conveyed into the stream below the ponds. It must be borne in mind that trout in ponds have not the advantages either for avoiding injury from impure water, or of finding remedies for it, which they possess in running streams. In these they are so scattered that each finds for himself some little spring of pure fresh water bubbling up for his special relief in the midst of surrounding impurities. Or he is at liberty if suffering from this defilement to seek those remedies which nature seems to have provided for all her creatures, and to which, by something which we call instinct, she unerringly points them. Besides, running water soon purifies itself, so that the danger to fish in streams is much less than in ponds.

3. *Excessive Temperature.*—On this point much must be left to the judgment and good sense of the practical farmer. So much depends upon the circumstances in each individual case, that only general directions can be given. It is safe, however, to say that to guard against the danger of overheating, all trout ponds depending upon any ordinary water supply should be small, so small as to fill in 4 to 5 hours with water at nearly spring temperature.

With plenty of water grasses, they might be made much larger, but it is best to begin on the safe side, and then follow the course indicated by experiment or experience. An ordinary ditch three or four feet wide and as many deep is much better for trout than a wide or circular pond. A compromise between these, however, is more ornamental, and if not made too large may do equally well. Depth, rather than width, however, should always characterize trout ponds in our climate.

4. *Breakage of Dams.*—The difficulty of making substantial dams without going to large expense, makes it advisable to excavate when this is practicable. The water in the pond should be kept, if possible, below the surface of the surrounding ground. When this cannot be done, special care should be taken to make the dam thoroughly water-proof. If clay can be readily obtained this is not difficult, but in the absence of this the dam should be made very thick and solid. Those of large means who are indifferent as to cost, can, of course, build of stone or brick, but the farmer must generally depend upon the soil about his pond. This should be thoroughly packed and then covered with a layer of coarse gravel or broken stone extending over the entire pond, and especially along the sides. The cheapest and best form of dam for the outlet of the pond, is a breastwork of 2-inch plank extending on each side two or three feet beyond the side line of the pond, and the same distance below the bottom of the pond. Put this in with clay and gravel well packed at the bottom and around the ends, and you have a perfectly reliable and durable dam. Cut 6 or 8 inches out of the centre of this, from the top to the bottom of the pond, and you can at any time draw the water to any depth desired. On each side of this outlet, 6 or 8 inches from the opening, fasten a piece of scantling extending from top to bottom. On the front side of this, place your

screen, also extending from top to bottom. Behind the screen and between the pieces of scantling drop short pieces of board. The pressure of the water will hold them in place and you can regulate the depth of the water with the utmost convenience. This large amount of screen surface saves much trouble and greatly lessens the danger of overflow.

5. *Living Enemies.*—We shall speak at this time only of such as must be guarded against in the construction of ponds. These are the muskrat, the crayfish and mink. The two first mentioned are chiefly dangerous on account of their boring or burrowing propensity. If they can effect a lodgment in the banks of a pond where the water is confined by a dam, you must either get them out or prepare to lose your fish. Thousands of fish have gone through a crayfish or muskrat hole in a single night. The gravel covering which we have recommended is an effectual preventive of all such depredations. Let it be used liberally and none of these three enemies will be able to effect any lodgment. The mink, however, must be guarded against for another reason. He is very fond of trout and is an expert fisherman. He comes at night, and if he cannot find good hiding places, retires when he has filled his basket. He must be trapped or shot, or he will prove a very expensive visitor. The above directions are equally adapted to the construction of ponds for other fish in all respects save size. For fish that live in warm water, ponds may be enlarged to suit taste. A. K.

[I have to concede to our friend Potomac that my figures in regard to Colombia River salmon yield were not official in the proper sense of that word. They were taken from the *Forest and Stream*, however, the official organ of fish culture, and supposed to be reliable. A note from the editor in the last number says that the statement is given solely on the authority of his correspondent. He does not know of any official figures, believes the estimate high, but thinks if the demand were great enough the fisheries would be worked up to $10,000,000.]

The Maryland Fisheries.

Messrs. Editors of the American Farmer:

I am neither by vocation or preference a correspondent of agricultural journals, but the great interest I feel in "Fish Culture," a subject of *vital* importance to many of your readers, prompts me to a few suggestions.

It is now an established fact beyond peradventure that fish (shad and herrings) can be rapidly increased by artificial hatching, and transferring to our rivers, and they return annually to the place of their nativity, *i. e.* to the locality they may have been placed after artificial hatching; this we have good reasons for believing, though this is irrelevant to the *points* we wish to make, viz: there is some doubt in the minds of fishermen of the lower Potomac as to the *policy* of increasing the supply of black bass in said waters by our commissioners, (though they have not yet placed any there.) We think they may not be apprehensive of evil consequences therefrom. In this opinion we have the concurrence of the U. S. Commissioner of Fish and Fisheries, (Prof. S. F. Baird) as you will see by reference to the enclosed letter.

My second point is in defence of "the commission." Major T. B. Ferguson I have the opportunity of frequently meeting, thereby learning something of his plans, &c. Your readers on the lower Potomac, (Charles co.,) can be assured that he is active and zealous in *office* in promoting the interest of the *whole* State. When the *proper* time arrives (next Spring,) the spawning season of *shad and herring*, he will visit the shores of the lower Potomac with the view of giving special attention to the propagation of said fish.

As regards the interests of the State generally, and more specially the southern and northern portions, we fully agree with your correspondent (in last month's issue) "Potomac" about "fancy fish." The greatest interest of the State at large is to be found in her *shad* and *herring* fisheries without doubt, and not in what your correspondent terms "fancy fish."

We believe that the Potomac and Susquehanna rivers should be used by our commissioners *principally* if not *solely* for the propagation of shad and herring, and *secondarily* they could give their attention to the increase of "fancy fish" in *other* waters of the State, in which shad and herring fisheries have *never* been of value. There are such waters in the State. Your correspondent "Potomac" should remember, however, that what he terms fancy fish, where shad and herring abound in large numbers, are not considered *fancy* elsewhere, but of intrinsic value; and this fact should not be entirely obscured in consequence of the *greater* value of the shad and herring to the people of Maryland.

Doubtless many of your readers are much interested in this subject, and it occurs to us that it would be advisable for them to use their influence with the next Legislature to increase the appropriation, which is one of the *embarrassments* the commissioners have to contend with in carrying out their plans; and to *modify* the present law so as to protect the *spawning grounds* and the parent fish during their short season of spawning. Pearson Chapman, Jr., M. D.

Baltimore City, Jan. 15th, 1875.

P. S.—"Potomac" "regrets exceedingly that you should have so hard and, we believe, unfair an editorial upon Mr. Seth Green as you have in the Nov. No. of the *Farmer*. You have done Mr. Green injustice, and ought therefore to make the *amende honorable*."

By reference we do not wish to be considered as casting an *imputation* against Mr. Green *in any way* whatever, but we can refer "Potomac" to Mr. O. N. Bryan, of *his county*,—a prominent and enterprising citizen who takes much interest in this subject, who, we are informed, received a communication from Mr. G. in reply to an inquiry from him as to the use of his *shad-hatching boxes*, fixing the *royalty* for the State of Maryland at $2,000, which sum could not be given from the *small* appropriation made by the late Legislature. P. C., Jr.

U. S. Commission, Fish and Fisheries,
Washington, January 14th, 1875.

Dear Sir.—In reply to your letter of inquiry, I beg to say that I do not think the introduction of black bass into the lower Potomac will affect

the question of shad and herring. We hope to make theses fish so abundant by artificial propagation, that the consumption by the bass will have very little effect upon the supply, especially as the young fish will remain in the river but a few months and after that be beyond any disturbance by the fish mentioned.

Yours truly, SPENCER F. BAIRD,
Commissioner.

P. CHAPMAN, M. D.
93 McCullough street, Balto.

The Fishing Interests of Maryland, &c.

Messrs. Editors of American Farmer:

We continue our efforts of putting upon record the value of the State's interest in shad and herring, a work begun all of ten years ago and not yet finished. A gentleman of Harford county—a fisherman and a fishing property-holder—writes us that "there are nine shores upon Bush river, worth for rent $100 each." Of course there are many more unfished, so that we must put Bush river down for at least eighteen shores. We have not yet heard from the Gunpowder river, but know it to be superior to Bush river in wealth of fish; therefore put that river down for eighteen shores. The Eastern Shore has not been satisfactorily heard from; we will therefore put its four rivers down at an average of three each. Then comes the Patuxent, the Severn and Patapsco rivers, to which we will give five shores. We sum up, then,—Potomac, 73; Susquehanna and Bay, 33. We have, then, all of one hundred and fifty shores in the State, worth all of $10,000 each, under proper fish regulations, and in the aggregate would be worth $1,500,000 as improved property—to-day, not worth the one-half of that sum. These fisheries, under full blast, ought to employ an average of thirty hands each; at one dollar per day for forty-five days for the fishing season, would give the laboring classes all of two hundred thousand dollars, ($200,000,) a pretty round sum to be scattered around the State; all of which it is proposed to swap off for a few fancy fish, *that the anglers of the State* may disport themselves at their leisure. This is not all that this industry would lead to; there are nets, ropes, boats, and pungies to carry fish to market. Worked up to its full pitch, there is no telling to what amount the shad and herring interest would increase the wealth of the State. We give here a statement of Capt. Hunter Davidson, for twenty-four shores upon the Maryland side of the Potomac: "They use 39,488 square fathoms of seine—619 men employed. Shad caught in the season by seines, 110,400; value, $14,353. Herrings caught in the season by the seines 12,570,000; value, $50,280. Gill nets, 243, containing 161,446 square fathoms of net; men employed by gillers 466; shad caught by gillers 351,800—value, $38,698; herring caught, 2,806,900—value, $8,421. Total value for all fish caught for 1871, $111,751."* "Double this sum and we have approximately the value of the Potomac shores for both Maryland and Virginia." By this rule we can find near enough for our purpose what the value of the whole State ought to be in fish. Sales of green fish at the above rate for 150 shores would approximate $700,000 annually. We think that we have said enough about the value of the fishing property of the State to convince all, fancy fish men as well, that it is the interest above all others in that line to be attended to. Recollect that this estimate is based upon the *catch* of 1871, by no means a favorable year. We will now invite your attention to another branch of this subject—the stocking our waters with bass and salmon, both *game fish and fish of prey*, and which ought not to be put into the same stream with the harmless shad. Upon this point we have the very highest authority in the land: "Bass are remarkably active and voracious." "Their food when small appears to be all kinds of insects, (flies, worms, &c.;) when larger, though not entirely leaving their early habits, their principal food is the *smaller fish of other kinds*."—Report U. S. Commissioner of Fish, Prof. Baird, part 11, page 37, note.

"They (bass) are predacious rascals, though, and would play havoc with salmon fry, and therefore ought not to be introduced into such streams."—*Norris' Fish Culture, page* 283. The very same may be said about salmon, "they are predacious rascals," as is proven by their carniverous teeth, their rapid growth, &c., and ought not to be put into streams with shad or herring. A writer in the *Baltimore American* a few weeks ago very justly raised his voice against bass. He said "the report of Prof. S. F. Baird, U. S. Commissioner of Fish, will create some alarm among the bass fishers of the Potomac. It is well known that the bass is a most voracious gormandizer, and that he subsists on smaller and weaker species of fish, such as chubs, minnows, &c. Before the parent bass, from which a countless progeny has descended, were put into the Potomac in 1854, all other varieties of fish common to the Atlantic slope were abundant. Prof. Baird says 'that the bass, as they have multiplied from year to year, have literally eaten up the weaker fish, and that many varieties which were exceedingly common before 1854 have almost entirely disappeared.'" The writer then goes on with much useful information upon Darwin's theory of "the survival of the strongest, applies with greater force to the finny tribe than to quadrupeds or birds, &c." But, notwithstanding *these facts, Darwin's theory*, which *just in this instance is doubtless true*, our Commissioners still go on putting predacious fish in our waters. As judicious would it be if a farmer was to put a wolf in his fold, and then put in his lambs. We find a voice in Maine uttering a timely warning upon the subject, and another in the *Marlborough Gazette* saying "if we wish to increase the staple fish, shad and herring, it should be our care to clear our waters of predacious fish." So it seems that we are not alone in our views upon this interesting subject. But still we fear that the work will go on until it is too late to arrest the hand of the destroyer. Science must live even if the whole State suffers. Scientists have had their way in this matter long enough. It is time the people had their eyes open to their interest. Scientists (would-be) are evidently trying to throw a veil of mystery around this matter. We were amused some time since about bass at the letting out the water of the canal at Georgetown. Swarms collected, the papers assure us, to witness "the habits of the

fish," "examine spawn, &c." We would like to see this chapter upon fish literature. We shall be doubtless told how the poor bass capered until they were assured that they were not to be eaten just then, but that they would have another chance for their lives—would dangle yet at the end of some angler's line, &c., &c. Hatching fish, Mr. Editor, is by no means science; it is simply a mechanical art,—like Columbus setting an egg upon its end,—to see it done is to know how to do it.

We have now lost one whole year in pisciculture, and we hope the commissioners will not allow another year to pass without paying some attention to "*our money interest*" *first.*

We see by the papers that the commissioners have hatched out and put in various streams 120,000 salmon. The same amount of expenditure ($3,000) would have hatched as many million of shad and herrings, which in three years' time would give us some return. Salmon will not give any for the next ten years. We shall doubtless catch a few occasionally and look upon them as curiosities.

"But the work will go on," said a fisherman to us not long since. "Let us wait until the next Legislature, then we can fix things as we please." For our part we do not agree to this. One year has already been lost to us, and we do not wish by any means to lose another. It takes too long to restock our waters with even shad and herring—all of three years, if not four,—to allow the whim of one man to rule.

We have more money appropriated for fish than any other State in the Union; so far we have got less for it. Our appropriation for fish alone it is true is doubtless meagre, only $1,750 per year for two years, while the commissioners get $3,000 for the same time. It is not generally known that fish commissioners in no other State get any pay for services, only their expenses paid out of the general fund. The report of the California Commissioners for the years 1872 and 1873, page 24, says: "We are willing to give our time to it, and perhaps it is not amiss for us to make this report the means of saying that which may not generally be known—*our services are without charge of any kind to the State.*" This, in substance, can be found in every report from California to Maine.

With great pleasure we welcome Mr. Kent's article upon the culture of trout in the last *Farmer*. Mr. K. has saved us the trouble of writing just such an article, to prove that private enterprise is amply sufficient for trout. This is what Prof. Baird said to us last spring: "Mr. ——, private enterprise is amply sufficient for trout." We will assist Mr. Kent in enforcing that fact upon our people by a few quotations: "In reference to fresh water fishes * * * *—but as a general rule the expense of feeding is such as to render the sale at comparatively high prices necessary for a satisfactory result."—*Part II, Report U. S. Commissioner of Fish, Prof. S. F. Baird, page 36.* "*Trout will pay better than fattening pigs.*"—*Trout Culture, by Seth Green, p. 78.*

Charles Co., Md., Jan., 1875. POTOMAC.

* These figures are all wrong. The amount of fish given would have brought twice the amount of money stated. For instance, we have 2,806,900 herrings caught by the gillers, value $8,421, when it ought to have been ten times the amount. P.

[TO BE CONTINUED.]

Poultry Yard.

Exhibition of the Maryland State Poultry Association.

This show was held at Raine's Hall, from 5th to 8th January, and was well attended. The display was an exceedingly creditable one, the fine room being filled to its full capacity. The showing of pigeons was especially fine, and was a surprise to many who are not aware of the interest felt here in these birds. The offerings of fowls of Messrs. Geo. Colton, Wm. Bowman & Son, J. E. Lloyd, T. A. Cochran and others, were very large and handsome, and the collections of pigeons of Messrs. Mordecai, Symington, Gaddess, Schwinn, Cochrane, Pusey, Stevens and others, were highly praised for their beauty and rarity.

An incubator and artificial mother attracted much attention, being probably the first ever publicly exhibited here. Some quails, paroquets, &c., also gained considerable notice.

The following is a report of the premiums awarded:

George Colton—First premium on Dark Brahmas; second on Light Brahmas; first and third on Partridge Cochins; second and third for Buff Cochins; second for White and second for Gold Spangled Hamburgs; first for Honduras Games; first and second for Gold Spangled Bantams; first on Black and Red Game Bantams; first and second for White Bantams; first for White Georgian Games. *J. R. Mordecai*—First on Light Brahmas; third on Rouen Ducks. *Wm. Bowman & Son*—First and second for White Cochins; first and second for W. F. Black Spanish; second for White Leghorns; third on Dark Brahmas; first on White Polands; first on Gold Spangled Polands; third for Honduras Games; second for Black and Red Game Bantams; second for Partridge Cochins. *T. A. Cochran*—First on Silver Duckwing Games; second and third on B. B. Red Games; first on Derby Games; second on Black Holland Turkeys; third on Bronze Turkeys; second on Rouen Ducks; first on Peafowls. *D. G. Stevens*—First on White Holland Turkeys; second on Honduras Games; first and second on Black Hamburgs; third on Gold Spangled Bantams. *John Oler*—First on B. R. Games; first for Pile Games. *J. E. Lloyd*—Diploma for Light Brahmas. *C. C. Corbett*—First for Plymouth Rocks. *W. A. Myers*—Second on White Holland Turkeys. *Charles Trump*—First and second on Bronze Turkeys. *J. Y. Bicknell*—First each for Cayuga and Rouen Ducks.

Our space will not permit us to give at length the prizes on pigeons.

DORKINGS.—Dorkings are of good size, mature young, lay fair-sized eggs, and are excellent sitters and mothers. The varieties are white and colored, the latter divided into gray, silver-gray and speckled. All have white legs and feet, five toes on each foot; their combs may be single or rose, though colored with single, and whites with rose, are preferred. We recommend them as a valuable farm variety.—*Live Stock Journal.*

Maryland Agricultural College.

A meeting of the board of trustees of the College was held on the 22d ultimo.

General Samuel Jones, president of the College, made a statement, giving a rather discouraging account of the finances of the institution. He spoke of notes that were out, and which would have to be met, and said it would require nearly $4,000 to pay the salaries of professors up to date. The whole amount of professors' salaries per annum is $8,700. The current expense for running the institution is about $1,000 per month. From the discussion it was learned the college is $12,000 in debt.

Mr. Dodge made a motion, which was adopted, that the president of the Agricultural College be authorized to receive students, non-residents of the State of Maryland, who may apply for special instructions, at the rate of $40 per month. A department of instruction in *nautical science* (!) has recently been introduced into the college, and is under the charge of Capt. Wm. H. Parker, late of the Naval Academy at Annapolis, and it was with a view of fostering this department that the motion offered by Mr. Dodge was adopted. The election of Captain Parker as the professor of nautical science was confirmed.

The board went into executive session, and adopted a resolution offered by Mr. Earle, that with a view of bringing the expenses of the college within its means, and of conforming the course of studies to the determination of the board to make the Agricultural College a school of high scientific instruction, including especially those sciences kindred to and connected with agriculture, that the board request the resignation, to take effect in sixty days from date, of the professor of ancient and modern language, the professor of chemistry and natural sciences, and of the professor of agriculture.

A resolution offered by Maj. Lee was adopted, reducing the salary of the president from $2,500 to $1,800 per annum, and that of the principal of the preparatory department from $1,300 to $1,200, the same to take effect at the expiration of sixty days. After the transaction of some other business not of general interest, the board adjourned. At present, there are only thirty-seven pupils on the college rolls.

The Grand Gathering of the Patrons in Charleston, S. C.

Here is the feeling shown, and a part of the programme, as given in the *Rural Carolinian:*

It is not merely a meeting of the National Grange that we are to look forward to in Charleston, on the first Wednesday in February next, though that of itself will be an event of the utmost importance and interest, but we may reasonably expect such a general gathering of Patrons of Husbandry here as has never yet been seen anywhere. We trust that our State Grange, and the Subordinate Granges throughout the State, are fully alive to the grandeur of the occasion. There must be no failure on the part of our people to make all necessary preparations for the reception and entertainment of the brothers and sisters from abroad. We are sure there will be none. Charleston never yet failed in the duties of hospitality, and we know that her welcome to the Patrons of the Union will be warm and hearty. Brothers and sisters of the North, the South, the East, and the West, prepare to come to Charleston on the first Wednesday of February, assured of finding yourselves among a people who are ever mindful of their obligations, whether taken upon themselves within the gates of the Grange or elsewhere. A grand excursion down the harbor to Fort Sumter, and up the Ashley River to the Phosphate Works, and other places of interest, under the auspices of Ashley Grange, No. 1, assisted by the Patrons of the State generally, is contemplated, as a part of the entertainment to be offered to the National Grange.

The Patrons of Husbandry.

A correspondent, himself an officer of a grange, gives expression to this sound doctrine:

"I apprehend many of the grangers have not studied, at least are not conversant with, the principles of political economy as taught by M. Say or Adams Smith's "Wealth of Nations." There are certain laws of supply and demand, wages of labor, and *self*-regulating laws of consumption and production, which lie at the base of all interchange of the products of labor among a people which no coöperation of organized bodies of men like the grangers can materially affect. At the same time, the principles of buying for cash at wholesale rates, avoiding debt, and other excellent moral and beneficiary features in the order, will and must exert an immense influence for good wherever the granges flourish. If the grangers improve Southern methods of farming, increase the productive capacity of their lands, invite population and manufactories for home production, home markets and consumption, make more food crops, thus extracting less fertility from their soils, the vexed questions of monopolies, labor, and others, which gave birth to the grange order, will be no longer heard of."

Grange Items.

The Maryland State Grange will hold its annual session in Lyric Hall, Law Building, Baltimore, on Tuesday, March 2d.

Laurel Grange, No. 26, Laurel, Md, has elected Wm. Snowden, master; Dr. De'Wilton Snowden, lecturer; Geo. W. Kellogg, secretary.

Eastern Star Grange, No. 5, Frederick, Md., has elected Col. John B. Thomas, master; Sam'l S. Brown, overseer; Sam'l Dutrow, secretary.

The Washington Co. (Md.) Agricultural and Mechanical Association has elected the following officers for 1875: B. A. Garlinger, president; D. Braumbaugh, vice-president; P. A. Witmer, recording secretary; Albert Small, corresponding secretary; B. F. Firey, treasurer; P. B. Small, Daniel Starzman, David Hoover, B. J. Byers, H. A. McComas, Geo. W. Harris, Chas. W. Humrichouse, J. R. Adams, F. K. Zeigler, Jno. H. Firey, directors.

Genl. R. Toombs, of Georgia, in remitting his subscription, says: "I value very highly your excellent journal, which is greatly needed by the agricultural classes in this State."

The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

BY SAML. SANDS & SON,

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Transient Advertisements payable in advance—all others quarterly.

Advertisements should reach us by the 20th of the month, to secure insertion in the succeeding issue.

FEBRUARY 1, 1875.

A Request.

We ask that as far as possible every reader of the *Farmer* will use his influence to extend its circulation among his friends and neighbors.—Each one can add one new name to our list, with scarce an effort; whilst with many a dozen, a score, can be enrolled with little trouble. Our edition this month is considerably increased, and we hope, with the help of our friends, to enter during February many hundred new names on our mail books. Will not each one do his part towards this?

WE PRESENT, with gratification, the array of good things furnished this month by our contributors.

Our German correspondent, Mr. Wenig, who holds an eminent position in the regards of agriculturists in Prussia, and who has a personal knowledge whereof he speaks from a residence in a portion of the United States very rapidly being denuded of its forests, utters words of warning deserving careful consideration by our farmers, on the destruction of timber in this country.

Our French letter is more than ordinarily interesting.

Mr. Holman's paper is a practical one, timely, well-considered, and on a subject worthy of reflection.

"Freedom" presents No. 4 of his series, and also a reply to his critic of last month, giving the editorial knuckles a rap incidentally, not perhaps entirely undeserved by the use of a careless expression.

Mr. E. B. Emory's directions for making super-phosphate at home are plain and practical.

Mr. Gilmer gives an interesting and useful sheep experience, whilst Mr. Fitz and an English settler in Virginia take up the dog question, the latter in language of significant earnestness.

Our correspondent Nansemond's second paper on trucking, which treats of the cultivation of the Irish potato, is seasonable and very useful.

Mr. R. S. Emory sends an instructive chapter on gooseberries; Mr. Fitz suggests a good device for protecting trees; and Mr. Massey gives a very acceptable paper on raising perennials from seed.

Mrs. J. B. Moore's article will be read with pleasure by all; and Mr. Brackenridge's on ferns with profit by every one desirous of becoming better acquainted with these lovely plants.

Our fish department overruns its accustomed bounds this month, but those readers who are not interested, will kindly remember that the *Farmer* largely circulates among those who are.

The reports from the various clubs, societies, &c., are all interesting, we think; and there is a great amount of other matter in this issue of value at once or prospectively.

To all of our contributors we express our appreciative thanks.

☞ There are two points in the proceedings, of the convention of the Montgomery county farmers which cannot fail to strike the attention of every reader. The first is that with this body of advanced farmers the question is not, does it pay to use commercial fertilizers? but, *how much* does it pay to use? One may apply them in this way; a second, in some other; another may recommend, as most efficient, their combination with natural manures; but it is remarkable that the general judgment as to their use is—*the more the better!*

The other point is the emphatic declaration of one of the foremost clubs composing the convention, that sheep are neglected, because *the laws of Maryland are averse to sheep husbandry!*

What a condition of things! The very system of agriculture most adapted to our situation—most suitable for repairing our impoverished lands—the one precisely fitted to communities, where, like in ours, sudden changes have produced a scarcity of farm labor—must be avoided because the laws are averse! Is it possible that the thirty thousand farmers of Maryland will much longer endure this?

A Valuable Farm for Sale.

The advertisement, to be found elsewhere, of a farm for sale near Suffolk, Va., by Dr. Geo. W. Briggs, is worth attention by any one who desires to settle in that inviting section. This locality is noted for its market gardens, and its facilities for shipping early vegetables and fruit to Northern markets are unsurpassed. To any parties seeking such an opening this seems a very promising one, and they would do well to visit or write the owner.

Eastern Shore Tuberose Bulbs for England.

Messrs. W. F. Massey & Co., of Chestertown, Md., have lately filled an order, as we hear from one of their neighbors, for some 5,000 tuberoses, from one of the largest firms in England, who, having seen specimens of bulbs of their production, found them so much superior to those imported from Italy that they immediately ordered a large quantity.

Burning of a Large Mail.

On the 7th ultimo a heavy Southern mail was burned on the route between Washington and Baltimore. From inquiries already received, we are disposed to believe that some matter for us was among that destroyed. Any correspondents who wrote us about that date and received no response should notify us.

Manufacturers of Oil of Vitriol.

In our last, in noticing the new advertisements of the month, we included those of Messrs. Slingluff & Co. and R. J. Baker & Co., manufacturers of sulphuric acid; and now, in view of the approach of the season for active operations, and the probable demand for acid in making phosphates on the farm, we call attention to the advertisements of Messrs. Symington Bros. & Co., and the Chemical Co. of Canton, both of whom are also makers of this article. A reference to Mr. Emory's instructions elsewhere is suggested in this connection.

THE AMERICAN GARDEN, referring to the use of a decoction of the roots of the May Apple (Podophyllum peltatum) recommended in a communication to the *Farmer*, by Mr. W. F. Massey, for the destruction of the potato bug, says: "If it will kill the potato bug, it is likely to serve many other insects that infest our gardens—such as the rose slug, the rose bug, and the currant worm—in the same way." In another paragraph, the editor, Mr. James Hogg, adds the following: "The *American Farmer* is an excellent journal of its class for the Southern States. Our friend, W. D. Brackenridge, is its floricultural editor, and anything from his pen can be relied upon as correct."

MR. JOSHUA THOMAS, it will be seen from his prominent advertisement in this month's *Farmer*, has removed from his former quarters on North street to No. 53 Light street, a locality in the very centre of the agricultural implement trade. Here he will keep a large stock of all his specialties, including, of course, the "Buckeye" mowers and reapers, in which he informs us very important improvements have been made for the coming harvest.

RUBBER-LINED COLLARS.—Mr. Macy's advertisement is worthy, we believe, of attention by every reader of the *Farmer*. Farmers who have used his collars inform us that there is no doubt of their superiority. They are certain preventives of galling, and humanity and self-interest, therefore, unite in favoring their use. Give them a trial.

The Farmers' Club of Baltimore Co., Md.

Messrs. Editors American Farmer:

This club held its regular meeting for January at the house of its president, John S. Baldwin. The subject for discussion was: Will it be advisable for the farmers of this locality to plant their usual crop of potatoes the coming season and contend against the ravages of the bug; and what is the best time to plant? It was very fully debated, as also the question of the best fertilizers to use. Among the members of the club are some of the most extensive and successful potato-growers in this section of the State.

The opinion was almost unanimous that we should profit by the experience of farmers in other sections of our country where the bug has committed such depredations, and therefore limit our crop to that required for home consumption, and that we should plant as early as practicable.

In the use of purchased fertilizers, it was related by those who had used some of the most popular side by side, that the Sea Island Guano manufactured by R. W. L. Rasin & Co., produced the most luxuriant growth and the most satisfactory results.

The following has been adopted as the regular order of business at the monthly meetings of the club: Calling the roll; reading minutes of last meeting; communications on business in hands of Secretary; discussion and vote on subject for the day; statistical report of farming operations, of the member at whose house the club is in session; examination of premises; remarks on same and on farming operations of the member; selection of subject for next meeting; appointment of essayist; adjournment. You will observe there is no order in the programme for dinner, but let me assure you that part is never forgotten. S. M. B.

THE FOURTH ANNUAL MEETING of the American Fish Culturists' Association will be held in New York, on Tuesday, February 9th, 1875, at 10 o'clock, at the office of Mr. George Shepard Page, No. 10 Warren street.

All interested in fish culture are invited.

Trucking—No. 2.

The Irish Potato Crop.

Messrs. Editors American Farmer:

It was remarked in my last that the truckers' heaviest work, was, in preparing and drilling manures, and that they used almost exclusively bought stable manure and Guanape P. Guano.

Those who buy *shoat* pigs in spring, and keep them in pens well supplied with woods mould, to consume unmarketable truck crops, find a well-made compost, which they do not hesitate to apply under cabbage without fear of the *club root.*

The early cabbage ground and the Irish potato land are now made ready, by laying off rows three to three and a half feet apart with the one-horse turn plow. When ready to drill manure for these crops, the same plow is often run in the same furrows, in an opposite direction, cleaning out, deepening them a little, and throwing a wave of earth on the opposite side. Thus the land stands for the potato crop, until about the middle of February, when, weather permitting, the planting commences. Guano, say 15 lbs. to the 100 yards, (some use only 10 lbs.) is sown directly on the compost, and, as was stated in your journal the past year, (published proceedings Chuckatuck Agricultural Club,) a harrow with two teeth only, one in front and the other in line with it in the rear, is run directly in the centre of the rows mixing the guano with the compost (which must be *short* and *fine* to render this work practicable) and opening a furrow about three inches deep for the cut seed. Here I might discuss the subject of cutting the tubers for seed, and quote experiments about the product from one, two and more eyes, half and whole tubers, but as I propose writing of the trucker's actual practice will say this: the majority I believe, (the vote on the question has not been taken,) cut their seed to two eyes as nearly as possible, not rejecting a good-size piece with one eye, nor do they punch out the eyes of a small piece that numbers three. Now comes the distance to plant, and on this will depend how far a barrel of cut seed will run. Twelve to fifteen inches apart in the drill is the common practice, while some plant closer, cutting to one eye. If it is proposed to grow corn or late cabbage after this crop, the drills should not be less than four feet. With the sets cut to two eyes, fifteen inches apart, about two hundred pounds guano, a barrel of seed will run from 1,500 to 2,000 yards, and yield from 25 to 38 barrels for one among the truckers.

The number of loads of compost required will depend of course upon the capacity of the cart, and the amount placed in the drill; the carts used by the truckers and the horses are large and strong, carrying nearly double in weight and bulk those of our ordinary farm carts. They consider from twenty-five to thirty loads to the brl. fair manuring. In the section immediatly adjoining the writer, where we do not buy stable manure, composts are made of woods mould about three-fourths, the remainder from stable, hog pens or barn yard, and the manure being coarse, the furrows are opened, the guano sown and slightly covered with a fork, the seed dropped and furrows filled with compost, of which we use from 60 to 80 of our cart loads to a barrel of seed. This is the old plan. Others combine the two, first manure slightly the drill, then guano, seed dropped and fill the furrows with compost. It is certainly a great convenience to do all the manuring before planting the seed, and the severity of the weather will often at the season of planting not permit us with safety to expose the cut seed any length of time to the open air. Cutting the seed a day before planting so as to dry the cut surface, is considered by many not worth the risk of loss from cold, and the writer has not learned of any special benefit supposed to be derived from rolling them in plaster, or the application of plaster to the growing plant, as recommended in a prize essay on potato culture some years since, (Compton Essay.)

Northern writers on the culture of the potato have more especial reference to the long and entire growth of the tubers until the tops die, and grow the crop for seed, fall market, starch factories, &c. Clover sod or a soil filled with carbonaceous material in a condition of breaking up or decay, ready to supply food readily assimilated by the plant is what they desire; hence they ignore highly nitrogenous manures to a great extent, except for the early crop. With us the crop is only one of profit when we can get the tubers of good market size before your Maryland crop comes in, and we must needs supply the plant with stimulants,—guano, stable manure, and the starch-forming elements found in the woods mould, muck, or any rich earth filled with the remains of vegetation.

While cultivation has its importance, less to this than most crops, the basis of success in the Irish potato crop as to earliness, and yield, is *plentiful manuring on open ground, medium well-drained soil.*

The writer used the expression *open* ground purposely, having twice signally failed to make a paying crop in orchards where the trees shaded the land. It may not be improper to say that the crop was planted as much for the orchard's benefit or more than with any expectation of profit from the potatoes. The same land, a young pear orchard, was planted three times in six years with this crop. The first crop gave twenty-three for one; the second twelve and the last crop only eight, one year since.

If the soil is not well drained, a rainy season will give you tops in abundance, with a late crop of moderate yield and small tubers. Many of the truckers prefer what they call a stiff soil for this crop, and mean, I presume, one that has considerable clay with the sandy loam; good *late* cabbage soil. The word "medium" has been used to convey the idea of such a soil as is retentive of moisture and manure, in which the crop, under good cultivation, will have all its wants well supplied, and mature its tubers rapidly during the warm days and genial showers of May, since the first weeks of June the crop should go to market.

If any attention is paid to the direction in which the rows run, I should prefer north and south, so that the first rays of the rising and last ones of the setting sun will fall on the sides of the rows. In general, two furrows are used in covering the seed, and when cold weather is

supposed to be over and the potatoes are getting ready to show their tops on the surface, the whole ground is harrowed level—this pulverizes and mellows the top soil. When the tops are well up, say three inches, a small turn-plow is run on each side, throwing the earth from the plants, and the crop is gone over rapidly with the hoe, *weeding*, but not *earthing* it. The tops now grow rapidly, and the next working is to throw down level the ridge left in the centre, with the five-hoed cultivator or any suitable implement. There is some little difference in the practice of cultivators as to slight earthing or almost entire flat culture at *the last working, which* should be done before, or just when the tops are blooming; working or stirring the soil after this is supposed to stimulate the plant to the further production of tubers and increase the culls. There is no question of one fact, that earthing the plants high with the turn-plow will increase the number of tubers at the expense of size and earliness.

The crop is harvested very cheaply and quite rapidly by plowing them up with a pair of horses; the freedmen gather them from the soil in baskets, leaving the culls, (all under one and a-half inches diameter are, I believe, so considered,) and put them in barrels with sacking covers, at 12 cents per barrel for their labor.

The potato crop, as will be seen by the above, is a very expensive one to grow, and if we estimate the cost thus—200 pounds guano and 1 barrel seed, $10.25; compost, $10.00; labor in planting, culture and digging, $7.00; we have the total of $27.25; to this must be added in shipping the cost of barrel and cover—about 35 cents; and even at a crop of thirty for one we have the cost of the crop ready for shipping $1.25 per barrel, as the cost of production. The crop is grown with less expense in this section with home-made manures, but the yield is not so great, and the actual cost of production is about the same.

There is an indirect *profit* attached to the cultivation of this crop that very properly should go to its credit. Among the truckers the valuable and indispensable crop of crab-grass hay, to which allusion was made in the first article—a second crop of corn, cabbage, turnips, from the same manure, and with us, who grow our own pork, black peas sown after the potato crop gives the hogs such an admirable start toward the smoke-house, that it does not require more than one-half the corn to introduce them properly into it, to make our Virginia bacon.

The employment of teams and labor at a season of planting when other work is not pressing, and even when second crops follow, the land shows the result of the heavy manuring for potatoes in succeeding years. The tuber itself, stimulated to growth by nitrogenous manures, takes none, or comparatively none, into its own composition, leaving the debris of its vines to go back to the soil, and quite often its physical character is so changed, especially stiff soils, as to improve it permanently for other crops.

What is done with the culls? Some of our truckers, when potatoes are high, ship them, if they bear half price; some let them lie on the ground; a few are often planted for a second crop; it will pay those who have penned hogs to boil them, and add one bushel of corn meal to every barrel of potatoes for the pigs. The past season was exceedingly favorable—wet August—for the second crop of potatoes, and some of our trucking friends raised fine crops for seed. It is said the late crop can be kept in our climate without sprouting in winter, which is not true of those harvested in June. NANSEMOND.

Exchange, Va.

Contents of February No.

Baltimore Markets, Jan. 28.

The quotations below are Wholesale Prices.

Breadstuffs. — *Flour* — Market dull and heavy. Prices are quoted as follows: Howard Street Super $4.00@4.25; do. common to fair Extra $4.62@4.75; do. good to choice do. $4.87@5.00; do. Family $7.25. Ohio and Indiana Super $4.00@4.50; do. common to fair Extra $4.62@4.75; do. good to choice do. $4.87@5.00; do. Family $5.25@6.25; Northwestern Spring $5.00@6.00; City Mills Super $4@4.25; do. low to medium Extra $4.75@5.50; do. Rio brands do. $6.50. City fancy brands $8.00@8.25. Fine Flour $3.50@3.75. Rye flour $5.25@5.75. Corn Meal, City Mills, $4.50; Western $4.00@4.25; Buckwheat Meal $3.00@3.25.

Wheat.—Receipts light and market quiet. Sales of good Maryland red at 118 cents; do. amber 125@130 cts.; do. white 110@125 cts.

Corn.—Dull, with downward tendency. Southern white 77@79 cts.; do. yellow 78@80 cts.; Western No. 2 white 78½; do. mixed 78½ cts.

Oats.—Steady, with little doing. Sales of Pennsylvania at 67 cts.; mixed Western 64@66 cts.

Rye.—Receipts light; demand moderate. Prime selling at 105 cents.

Cotton.—Market active and prices advancing. Quotations are as follows: Middling 14@15¼ cts.; low Middling 14¼ cts.; good ordinary 14⅛@14¼ cts.

Hay and Straw.—Demand moderate. Clover $15@$16; mixed $16@18; Prime Timothy $19@20; choice Cecil county do. $21@22. Rye Straw $13@14; Oat do. $13; Wheat do. $10@11 per ton.

Mill Feed.—City Mills Brownstuff $27; do. Middlings $26 per ton.

Provisions.—Quiet. Bulk Shoulders 8½ cts.; clear-rib Sides 10 cents; Bacon Shoulders 8½ cents; clear-rib Sides 11@11¼ cts. Hams 14@14½ cts. Lard 14½ cts. for refined. Mess Pork $20 per bbl. **Cheese**—Eastern 15½@16¼ cts.; Western 14½@15½. **Butter**—Western tubs 26@28 cts.; do. rolls 24@28 cts.; Glades, fair to choice, 25@28 cts.

Salt.—Ground Alum $1.10@1.20; Fine $2.00@2.10; Turk's Island 28@30 cts. per bus.

Seeds.—Begin to be active, with prices higher. Clover $6.50@7; Timothy $2.87@3.12; Orchard grass $2.75; Flax seed $2.00 per bus.

Live Stock.—*Beef Cattle.*—Inactive Market. We quote best on sale 5¼@7¼ cts.; generally rated first-class 4½@5¼ cts.; medium or good fair quality 3½@4¼ cts.; ordinary thin Steers (Oxen and Cows,) 3@3½ cents.

Sheep.—Dull with light receipts; quotations at 4½@5¼ cents for fair to good; 5½@6½ cts. for good to prime, gross.

Swine.—Supply ahead of demand. Fair to good quoted at 8½@9 cts.; good to extra 9¼@9¾ cents.

Tobacco.—Market quiet. We quote Maryland, frosted and sound common $7.00@7.50; medium dull $7.50@8.50; leafy brown $8.50@13.00; light red to yellow $12.00@18.00. Virginia, common to good lugs $9.50@12.00; common to medium leaf $10.50@14.00; good to prime leaf $14.50@18.00; selections $19.00@23.00.

ATTENTION IS DIRECTED to the Advertisement of ELLWANGER & BARRY, Nurserymen, Rochester, N. Y. As is well known, they are the largest and most successful growers of Fruit and Ornamental Trees, Shrubs and Plants, in the United States. Parties wanting anything in their line will do well to send for their Illustrated and Descriptive Catalogues. 1t

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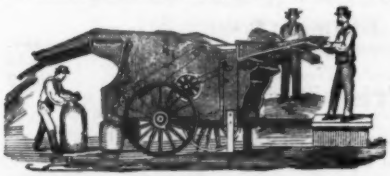

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